PMR BUZZ

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Preface

Dear Friends,

Welcome to yet another edition of PMR Buzz.

The mélange highlights the importance of rehabilitation in post-covid patients for improving mobility, functions particularly respiratory challenges in the article by Federica Bertolucci et al. Indian health care experts must consider and should have used the physiatry services during the post-acute and rehabilitation phase of the COVID patients for better outcomes.

Osteoarthritis knee is a common problem we treat in our outpatients; chemical ablation of phenol can be an alternative for radiofrequency (RF) ablation where pain management is the priority goal for the patient in low- and middle-income countries where affordability limits the access to an RF procedure as well as knee arthroplasty. But more randomized controlled trials are needed to show it as a standard treatment.

Robotics are now in vogue in neurorehabilitation wards; articles by Rocco S Calabro et al. and Cho EH et al. provide evidence for its role in improving outcome scores.

Cervical dizziness is an underdiagnosed entity, and Alessandro Micarelli et al. underlines the importance of posturography in its management.

Assistive devices have remained a challenge by cost and availability for physically challenges people in low and middle-income countries and the article by Mohd. Rizwan et al. provide a piece of evidence that developing devices after understanding the functional and non-functional requirements of these subjects will decrease the abandonment rate and increase the device's effectiveness.

Enjoy scanning.

- Dr. Mrinal Joshi

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Demonstrating the vital role of physiatry throughout the health care continuum: Lessons learned from the impacts of the COVID-19pandemic from a national academy perspective.

PM&R. 2021;13:605–608
Stautzenbach TE.

Abstract

Speculators, fortune tellers, and psychics have flourished during prior periods of unprecedented and unnerving national calamity. Our current situation is no different, although the players have been polished up as they make bold predictions regarding the implications of the worldwide COVID-19 pandemic on our future society and health care system. Management consultants are feverishly publishing and offering their premium services to share prophecies around the consequences and fundamental change that will result from our current crisis. Many variables across our society, including social and political unrest, are in simultaneous state of change making detailed predictions about the future more speculative than ever. Although it may be too early to accurately predict the future, we can and should look to the broader trends that existed before the pandemic that are now under more scrutiny and pressure in today's environment.

The pandemic has accelerated many existing precrisis trends and has dramatically uncovered the fragility of our health care system. The inequities and social implications of our fragmented delivery system and national health care funding strategies have been undeniably exposed. Future analysis will surely document the outcome variances between communities that were able to respond to the pandemic with an integrated health care response compared to those communities that lacked the system integration and cooperation to marshal a comprehensive response. The instability of our existing health care finance and reimbursement system, which necessitates and prioritizes specialized procedures that must subsidize general and intensive medical care, has brought many of our largest and most prestigious health care systems to their brink with implications that will last much longer than the pandemic itself. The vulnerability of private and group medical practices with limited financial reserves and access to capital has resulted in long-term uncertainty for many practices.

Positively and appropriately, front-line physicians and health care workers have been praised and their professional reputations elevated for heroic actions and personal sacrifices responding to the COVID-19 pandemic. So too have physiatrists been deployed to the front line and have converted rehabilitation units and innovatively reengineered practices to maintain crucial continuity of care for the most vulnerable patients. The rapid response and inspiring achievements of medical science and research have moved from scientific journals to front-page news.

Yet these merited accolades for the medical community are coming during a time of great hardship and disruption in the profession. Temporary practice closures and the ongoing significant reductions in patient volume, combined with higher practice expenses (e.g., personal protective equipment [PPE] and other safety investments) threaten the stability of physician practices and are creating profound fiscal and emotional stress on practitioners at the very time they are being asked to step forward. Surveying by the American Academy of Physical Medicine and Rehabilitation (AAPM&R), as well as the American Medical Association, illuminate these innovations, disruptors, and stressors. A survey of AAPM&R physiatrists (supplemental Appendix) indicates that 6.7% of respondents reported that their inpatient rehabilitation facilities (IRFs) closed (27% partial bed closings), 4.5% of IRFs were turned into acute COVID-19 units, 7.9% of IRFs were converted into acute non-COVID acute hospital beds, and 31.5% of IRFs created dedicated IRF COVID-19 recovery units. In addition, 20.2% of the affected physiatrists reported being deployed to care for acutely ill COVID-19 patients in the inpatient setting and 68.5% reported caring for recovering post-COVID-19 patients. Procedures in private practice settings and institutions were halted or significantly reduced for safety protocols as well as bed capacity and PPE rationing. Five to 6□months into the pandemic, American Medical Association research1 reports an overall drop in physicians' revenues averaging 32%, as 70% were still experiencing fewer total patient visits, inclusive of telemedicine, than prepandemic volumes. Combined, these effects have further exasperated the already alarming levels of burnout in the medical profession.

Of utmost concern, and potentially a predictor of significant substantive change, may be the question that many physicians are quietly asking themselves - "Who's got my back?"

Amid the pandemic, with physicians stepping forward, taking risk, and making significant personal sacrifice, many are also looking at the government and their employers with dismay. While responding to their professional code and responsibility, often in conditions without appropriate PPE, physicians are also experiencing compensation reductions and other unwarranted assaults that are compounding the professional crisis. Large health care systems, with billion-dollar endowments and reserves, have reduced physician compensation while concurrently increasing workload expectations. Physicians are being asked, or required, to reduce or eliminate future time off to make up previously reduced relative value units. Private equity practice owners are tightening the productivity screws while concurrently reducing efficiency bonuses. Professional development resources are being frozen or curtailed at the same time physicians are being asked to expand their care into new and unfamiliar areas. Government, although being commended for providing practitioners and practices with fiscal relief plans and regulatory flexibility, continues a long-term assault on medicine by threatening deep reimbursement cuts (e.g., Centers for Medicare & Medicaid Services 2021 Proposed Physician Fee Schedule) during a fiscal recovery that has put medical practices in jeopardy. In PM&R, during a pandemic that is sure to have profound long-term recovery and medical rehabilitation patient needs, the Centers for Medicare & Medicaid Services had the impudence to propose allowing nonphysician providers to replace essential physiatry medical functions. There should be no question why medicine is seeing a substantive increase in early physician retirement and those simply walking away, which will compound the prepandemic physician-shortage.

Chemical Ablation of Genicular Nerve with Phenol for Pain Relief in Patients with Knee Osteoarthritis: A Prospective Study.

Roberta Cristina Risso, Leonardo Henrique Cunha Ferraro, Thiago Nouer Frederico, Philip W H Peng, Marcus Vinicius Luzo, Pedro Debieux, Rioko Kimiko Sakata
Pain Pract. 2021 Apr;21(4):438-444.

Abstract

Background

Radiofrequency ablation of the genicular nerve is performed for knee osteoarthritis (KOA) when conservative treatment is not effective. Chemical ablation may be an alternative, but its effectiveness and safety have not been examined. The objective of this prospective open-label cohort study is to evaluate the effectiveness and safety of ultrasound-guided chemical neurolysis for genicular nerves with phenol to treat patients with chronic pain from KOA.

Methods

Forty-three patients with KOA with pain intensity score (Numeric Rating Scale, NRS) ◘ 4, and duration of pain of more than 6 months were considered for enrollment. Ultrasound-guided diagnostic blocks of genicular nerves (superomedial, inferomedial, and superolateral) with 1.5 mL of 0.25% bupivacaine at each site were performed. Those who reported more than 50% reduction in NRS went on to undergo chemical neurolysis, using 1.5 mL 7% glycerated phenol in each genicular nerve. NRS and Western Ontario and McMaster Universities Arthritis Index (WOMAC) scores were assessed before intervention and at 2 weeks and 1, 2, 3, and 6 months following the intervention.

Results

NRS and WOMAC scores improved at all time points. Mean pain intensity improved from 7.2 (95% confidence interval [CI]: 6.8 to 7.7) at baseline to 4.2 (95%CI: 3.5 to 5.0) at 6-month follow-up ($P < 0.001$). Composite WOMAC score improved from 48.7 (95%CI: 43.3 to 54.2) at baseline to 20.7 (95%CI: 16.6 to 24.7) at 6-month follow-up ($P < 0.001$). Adverse events did not persist beyond 1 month and included local pain, hypoesthesia, swelling, and bruise.

Conclusion

Chemical neurolysis of genicular nerves with phenol provided efficacious analgesia and functional improvement for at least 6 months in most patients with a low incidence of adverse effects.

Classification challenges of the 2019 revised International Standards for Neurological Classification of Spinal Cord Injury (ISNCSCI).

Steven Kirshblum, Mary Schmidt Read, Rüdiger Rupp
Spinal Cord 2021 Jun 4.

Abstract

Study Design

Retrospective review of ISNCSCI datasets.

Objectives

To discuss the correct classification of ISNCSCI datasets considered as challenging.

Setting

International expert collaboration.

Methods

The International Standards Committee of the American Spinal Injury Association (ASIA) receives challenging case scenarios regarding the International Standards for the Neurological Classification of Spinal Cord Injury (ISNCSCI). Among those cases received, sample cases representing different categories of typical classification difficulties were identified by members of the International Standards committee.

Results

From the cases received, five sample cases were identified as representative for publication. These cases are related to the correct classification in the presence of non-SCI related conditions, the determination of motor zones of partial preservation in regions with no myotomes to test, the classification of the ASIA Impairment Scale in patients with substantial motor function below the motor level but no sacral sparing, the inclusion of non-key muscle functions in the classification of sensory incomplete individuals, and the correct classification of individuals with an amputation.

Conclusion

Presenting cases with challenging classifications, along with responses and explanations, will serve spinal cord injury professionals to better understand and utilize the ISNCSCI classification. As the ISNCSCI endorsed by ASIA and the International Spinal Cord Society (ISCoS) evolves over time, such resources are important to clarify inquiries from the spinal cord injury community and to understand the rationale for revisions.

Respiratory complications during initial rehabilitation and survival following spinal cord injury in Sweden: a retrospective study.

Charlotta Josefson, Tiina Rekand, Åsa Lundgren-Nilsson, Katharina S Sunnerhagen
Spinal Cord 2021 Jun;59(6):659-664.

Study Design

Retrospective study.

Objectives

To determine prevalence of respiratory complications in individuals with spinal cord injury (SCI) during the initial rehabilitation at the spinal cord injury unit (SCU) and to describe the subsequent effect on mortality.

Setting

The SCU at the university hospital in Gothenburg, Sweden.

Methods

We reviewed the medical charts of newly injured persons with SCI who were admitted to the SCU between 1/1/2010 and 12/31/2014. Outcome measures were time to death, length of stay, occurrence of respiratory complications, and the use of breathing aids.

Results

A total of 136 consecutive individuals were included; 53% with cervical SCI and 20% with lower SCI suffered from one or several respiratory complications during their initial rehabilitation in the SCU. At follow-up, 10/1/2018, 20% of the individuals were deceased. The most common cause of death was related to respiratory insufficiency. The individuals with respiratory complications during the initial rehabilitation in the SCU had particularly shortened survival compared with those without. The relative risk (RR) of dying if the person suffered from any respiratory complications during their initial rehabilitation in the SCU was 2.1 times higher than for those with no respiratory complications (RR, 2.1; 95% CI, 1.1-3.9).

Conclusions

Having respiratory complications at the SCU provides preliminary data to support the claim that respiratory complications predict premature mortality. Early diagnosis and prophylactic measures seem to be necessary to mitigate the adverse consequences of serious respiratory problems.

Effects of kinesio taping on hip abductor muscle strength and electromyography activity in athletes with chronic ankle instability: A randomized controlled trial.

Ataullah MG, Kapoor G, Alghadir AH, Khan M. Effects of kinesio taping on hip abductor muscle strength and electromyography activity in athletes with chronic ankle instability: A randomized controlled trial. J Rehabil Med. 2021 May 20
Journal of Rehabilitation Medicine

Abstract

Objective

Athletes with chronic ankle instability tend to develop hip abductor muscle weakness. Kinesio taping may help this muscle perform its functions, thus preventing injury. The aim of this study was to assess the effects of Kinesio taping on hip abductor muscle strength and electromyography (EMG) activity.

Subjects

A total of 34 athletes, mean age 22.08 years (standard deviation 2.71 years) participated in the study.

Methods

A pre-test–post-test experimental design was used. For the experimental group, Kinesio tape, and for the control group, Micropore tape, was applied over the gluteus medius muscle. Gluteus medius muscle strength and EMG activity were noted in supine and during the single-leg squat test (SLST), respectively, before and after the intervention. Strength was measured through maximum voluntary isometric contraction (MVIC) force with a handheld dynamometer, and muscle activation measured through EMG.

Results

In the experimental group, there was a significant increase in gluteus medius strength, by 10.27% (p=0.00), and a significant decrease in EMG activity (p=0.00), by 8.38%. In the control group, there was a significant increase in gluteus medius strength, by 2.89% (p=0.01) and a not statistically significant decrease in EMG activity, by 0.80% (p=0.15).

Conclusion

Kinesio taping is effective in increasing hip abductor muscle strength in athletes with chronic ankle instability.

Effects of exercise mode on postprandial metabolism in humans with chronic paraplegia.

McMillan DW, Maher JL, Jacobs KA, Mendez AJ, Nash MS, Bilzon JLJ. Effects of Exercise Mode on Postprandial Metabolism in Humans with Chronic Paraplegia. Med Sci Sports Exerc. 2021 Jul 1;53(7):1495-1504.
Medicine & Science in Sports & Exercise

Abstract

Purpose

The purpose of this study was to assess the acute effects of exercise mode and intensity on postprandial macronutrient metabolism.

Methods

Ten healthy men age 39 ± 10yr with chronic paraplegia (13.2 ± 8.8yr, ASIA A–C) completed three isocaloric bouts of upper-body exercise and a resting control. After an overnight fast, participants completed circuit resistance exercise (CRE) first and the following conditions in a randomized order, separated by >48 h: i) control (CON), ~45-min seated rest; ii) moderate-intensity continuous exercise (MICE), ~40-min arm cranking at a resistance equivalent to ~30% peak power output (PPO); and iii) high-intensity interval exercise (HIIE), ~30 min arm cranking with resistance alternating every 2 min between 10% PPO and 70% PPO. After each condition, participants completed a mixed-meal tolerance test consisting of a 2510-kJ liquid meal (35% fat, 50% carbohydrate, 15% protein). Blood and expired gas samples were collected at baseline and regular intervals for 150 min after a meal.

Results

An interaction ($P < 0.001$) was observed, with rates of lipid oxidation elevated above CON in HIIE until 60 min after a meal and in CRE at all postprandial time points up to 150 min after a meal. Postprandial blood glycerol was greater in MICE ($P = 0.020$) and CRE ($P = 0.001$) compared with CON. Furthermore, non-esterified fatty acid area under the curve had a moderate-to-strong effect in CRE versus MICE and HIIE (Cohen's $d = -0.76$ and -0.50, respectively).

Conclusions

In persons with paraplegia, high-intensity exercise increased postprandial energy expenditure independent of the energy cost of exercise. Furthermore, exercise combining resistance and endurance modes (CRE) showed the greater effect on postprandial lipid oxidation.

Functional performance differences between carbon fiber and fiberglass prosthetic feet.

Kaufman KR, Bernhardt K. Functional performance differences between carbon fiber and fiberglass prosthetic feet. Prosthet Orthot Int. 2021 Jun 1;45(3):205-213.
Prosthetics and Orthotics International

Abstract

Background

Persons with lower limb amputation require increased functionality. The largest category of feet for active individuals with a transtibial amputation is energy storage and return (ESR) feet. These feet are typically constructed of carbon fiber composite materials. Recently, a prosthetic foot composed of a fiberglass composite has emerged in the market. However, there are no comparative studies of these devices.

Objectives

Compare the biomechanical performance and prosthesis-related quality of life when using a fiberglass prosthetic foot design compared with traditional carbon fiber ESR designs.

Study Design

This is a repeated-measures randomized cross-over trial.

Methods

Gait analysis was performed on 10 experienced male subjects with unilateral transtibial amputations (K-level III) while walking on level ground and a ramp. Patient-reported outcomes were collected using the Prosthesis Evaluation Questionnaire.

Results

Gait data demonstrated increased ankle dorsiflexion ($P < .01$), similar ankle moments ($P = .07$), and increased ankle power generation ($P = .01$) when using the fiberglass foot. The increased power generation occurred at the correct time in the gait cycle such that the timing and magnitude of peak knee flexion was unaffected ($P > .19$). The fiberglass foot had greater energy absorption during gait ($P = .01$) with no difference in energy return ($P = .37$). The subjects expressed improved prosthesis-related quality of life with the fiberglass foot ($P = .01$).

Conclusions

The findings of this study demonstrate that the new ESR foot comprising a fiberglass material had better performance than traditional designs using a carbon fiber material.

Routine Blood Chemistry Predicts Functional Recovery After Traumatic Spinal Cord Injury: A Post Hoc Analysis.

Leister I, Linde LD, Vo AK, Haider T, Mattiassich G, Grassner L et. al
Neurorehabilitation and Neural Repair. 2021 April; 35:321-33.

Background

Spinal cord injury (SCI) leads to various degrees of lifelong functional deficits. Most individuals with incomplete SCI experience a certain degree of functional recovery, especially within the first-year postinjury. However, this is difficult to predict, and surrogate biomarkers are urgently needed.

Objective

We aimed to (1) determine if routine blood chemistry parameters are related to neurological recovery after SCI, (2) evaluate if such parameters could predict functional recovery, and (3) establish cutoff values that could inform clinical decision-making.

Methods

We performed a post hoc analysis of routine blood chemistry parameters in patients with traumatic SCI (n = 676). Blood samples were collected between 24 and 72 hours as well as at 1, 2, 4, 8, and 52 weeks postinjury. Linear mixed models, regression analysis, and unbiased recursive partitioning (URP) of blood chemistry data were used to relate to and predict walking recovery 1 year postinjury.

Results

The temporal profile of platelet counts and serum levels of albumin, alkaline phosphatase, and creatinine differentiated patients who recovered walking from those who remained wheelchair bound. The 4 blood chemistry parameters from the sample collection 8 weeks postinjury predicted functional recovery observed 1 year after incomplete SCI. Finally, URP defined a cutoff for serum albumin at 3.7 g/dL, which in combination with baseline injury severity differentiates individuals who regain ambulation from those not able to walk. Specifically, about 80% of those with albumin >3.7 g/dL recovered walking.

Conclusions

Routine blood chemistry data from the postacute phase, together with baseline injury severity, predict functional outcome after incomplete SCI.

Effects of two different robot-assisted arm training on upper limb motor function and kinematics in chronic stroke survivors: A randomized controlled trial.

Cho KH, Song WK.
Topics in Stroke Rehabilitation. 2021 April; 28:241-250.

Background

Comparative studies of different robotic types are warranted to tailor robot-assisted upper limb training to patient's functional level.

Objectives

This study aimed to directly compare the effects of high inertia robot arm (whole arm manipulator, WAM) and low inertia robot arm (Proficio) on upper limb motor function in chronic stroke patients.

Methods

In this randomized controlled trial, 40 chronic stroke survivors were randomized into robot-assisted arm training with WAM (RAT-WAM) and robot-assisted arm training with Proficio (RAT-P) groups. The RAT-WAM and RAT-P groups participated in the robot-assisted arm training with WAM and robot-assisted arm training with Proficio, respectively, for 40 min daily, three times weekly over a four week. Upper limb motor function was measured before and after the intervention using the Fugl–Meyer assessment (FMA), action research arm test, and box and block test (BBT). Curvilinearity ratio (the length ratio of a straight line from the start to the target) was also measured as an index for upper limb kinematic performance.

Results

The RAT-WAM and RAT-P groups showed significant improvements in FMA-total and -proximal (shoulder/elbow units), BBT, and ARAT after the intervention ($P < .05$). Also, the RAT-P group showed significantly more improvement than the RAT-WAM group in FMA-distal (hand/wrist units) ($P < .05$).

Conclusions

Improvements of upper limb motor function occurred during robot-assisted arm training with robotic systems. Low inertia robot arm was more effective in improving the motor function of the hand and wrist. The results may be useful for robot-assisted training for upper limb impairment.

Comparing the Westmead Posttraumatic Amnesia Scale, Galveston Orientation and Amnesia Test, and Confusion Assessment Protocol as Measures of Acute Recovery Following Traumatic Brain Injury.

Spiteri C, Ponsford J, Jones H, McKay A.
The Journal of Head Trauma Rehabilitation. 2021 June; 36:156-63.

Background

The duration of the acute period of recovery following traumatic brain injury (TBI) remains a widely used criterion for injury severity and clinical management. Consensus regarding its most appropriate definition and assessment method has yet to be established.

Objective

The present study compared the trajectory of recovery using 3 measures: the Westmead Post-Traumatic Amnesia Scale (WPTAS), the Galveston Orientation and Amnesia Test (GOAT), and the Confusion Assessment Protocol (CAP). Patterns of symptom recovery using the CAP were explored.

Participants

Eighty-two participants with moderate to severe TBI in posttraumatic amnesia (PTA) on admission to an inpatient rehabilitation hospital.

Design

Prospective longitudinal study.

Outcome Measures

Length of PTA (days), agreement between measures (%, κ coefficient), and pattern of symptom recovery.

Results

Participants emerged from PTA earliest on the CAP followed the GOAT, and last on the WPTAS. There was good agreement between the CAP and the GOAT as to PTA status, but both tests had poor agreement with the WPTAS. Of patients considered out of PTA on the CAP, the majority exhibited signs of amnesia on the WPTAS and one-third had clinical levels of agitation.

Conclusion

The WPTAS identifies a later stage of PTA recovery that requires specialized management due to ongoing amnesia and agitation. The CAP and the GOAT are less sensitive to this extended period of PTA.

Multi-center observational study on occurrence and related clinical factors of neurogenic heterotopic ossification in patients with disorders of consciousness.

Estraneo A, Pascarella A, Masotta O, Bartolo M, Pistoia F, Perin C, et al.
Brain Injury. 2021 April; 35:530-5.

Aims

To assess occurrence and clinical correlates of neurogenic heterotopic ossifications (NHO) in patients with prolonged disorder of consciousness (DoC).

Design

Multi-center cross-sectional observational study.

Setting

23 intensive neurorehabilitation units.

Subjects

287 patients with prolonged disorder of consciousness (DoC; 150 in vegetative state, VS, and 128 in minimally conscious state, MCS) of different etiology (vascular = 125, traumatic = 83, anoxic = 56, others = 14).

Main Measures

Clinical evidence of NHO confirmed by standard radiological and/or sonographic evaluation; Coma Recovery Scale-Revised; Disability Rating Scale (DRS); Early Rehabilitation Barthel Index; presence of ventilator support, spasticity, bone fractures and paroxysmal sympathetic hyperactivity.

Results

31 patients (11.2%) presented NHO. Univariate analyses showed that NHO was associated with VS diagnosis, traumatic etiology, high DRS category and total score, and high occurrence of limb spasticity and bone fractures. A cluster-corrected binary logistic regression model (excluding spasticity available in a subset of patients) showed that only lower DRS total score and presence of bone fractures were independently associated with NHO.

Conclusions

NHO are relatively frequent in patients with DoC, and are independently associated with functional disability, bone fractures and spasticity. These findings contribute to identifying patients with DoC prone to develop NHO and requiring special interventions to improve functional recovery.

Diagnostic route of cervicogenic dizziness: usefulness of posturography, objective and subjective testing implementation and their correlation.

Alessandro Micarelli, Andrea Viziano, Ivan Augimeri, Beatrice Micarelli, Donatella Capoccia & Marco Alessandrini (2021) Diagnostic route of cervicogenic dizziness: usefulness of posturography, objective and subjective testing implementation and their correlation, Disability and Rehabilitation, 43:12, 1730-1737. Disability and Rehabilitation.

Abstract

Purpose

To evaluate posturography measurements, and their association with other clinical tests used for cervicogenic dizziness diagnosis, in a cohort of subjects suffering from cervicogenic dizziness, compared with healthy subjects.

Materials and methods

Ninety-three cervicogenic dizziness patients and 98 age- and gender-matched healthy subjects underwent video-Head impulse test, posturography testing, evaluation of cervical spine movements by means of cervical range of motion goniometer and self-report and performance measures, including Dizziness Handicap Inventory, Neck Disability Index, Neck Pain Intensity, Tampa Scale for Kinesiophobia and Hospital Anxiety and Depression Scale.

Results

Cervicogenic dizziness patients demonstrated significant increases in classical posturography parameters (i.e., surface and length) and in power spectra values within middle and high-frequency interval depicting balance control alterations especially due to proprioceptive integration changes. Furthermore, decreases in degrees of cervical range of motion and increases of self-report and performance measures – highlighting significant complaints of subjective feeling of dizziness – were found in these patients when compared with healthy subjects. Multiple correlations were found between posturography testing and cervical range of motion and Dizziness Handicap Inventory as well as between different self-report and performance measures in cervicogenic dizziness patients.

Conclusions

The implementation of posturography – including power spectra analysis - coupled with appropriate exclusion of other disorders, may represent a useful tool in improving cervicogenic dizziness assessment in terms of cost, time consumption and correlation with other measurements.

Literature review on assistive devices available for quadriplegic people: Indian context.

Mohd Rizwan Jafar, D S Nagesh
Disabil Rehabil Assist Techno. 2021 Jun 26;1-13.

Abstract

Purpose

This literature review aims to find the current state of the art in self-help devices (SHD) available for people with quadriplegia.

Materials and methods

We searched original articles, technical and case studies, conference articles, and literature reviews published between 2014 to 2019 with the keywords ("Self-help devices" OR "Assistive Devices" OR "Assistive Product" OR "Assistive Technology") AND "Quadriplegia" in Science Direct, Pubmed, IEEE Xplore digital library and Web of Science.

Results

Total 222 articles were found. After removing duplicates and screening these articles based on their title and abstracts 80 articles remained. After this, we reviewed the full text, and articles unrelated to SHD development or about the patients who require mechanical ventilation or where the upper limb is functional (C2 or above and T2 or below injuries) were discarded. After the exclusion of articles using the above-mentioned criterion 75 articles were used for further review.

Conclusion

The abandonment rate of SHD currently available in the literature is very high. The major requirement of the people was independence and improved quality of life. The situation in India is very bad as compared to the developed countries. The people with spinal cord injury in India are uneducated and very poor, with an average income of 3000 ◘ (41$). They require SHDs and training specially designed for them, keeping their needs in mind.

Implications for rehabilitation

People with quadriplegia are totally dependent on caregivers. Assistive devices not only help these people to do day-to-day tasks but also provides them self-confidence.Even though there are a lot of self-help devices currently available, still they are not able to fulfil the requirements of people with quadriplegia, hence there is a very high abandonment rate of such devices.This study provides an evidence that developing devices after understanding the functional and non-functional requirements of these subjects will decrease the abandonment rate and increase the effectiveness of the device.The results of this study can be used for planning and developing assistive devices which are more focussed on fulfilling the requirements of people with quadriplegia.

Significance of the neurological level of injury as a prognostic predictor for motor complete cervical spinal cord injury patients.

Osamu Kawano, Takeshi Maeda, Hiroaki Sakai, Muneaki Masuda, Yuichiro Morishita, Tetsuo Hayashi, Kensuke Kubota, Kazu Kobayakawa, Kazuya Yokota, Hironari Kaneyama
J Spinal Cord Med 2021 Apr 8;1-7.

Abstract

Objective

To investigate the usefulness of the combination of neurological findings and magnetic resonance imaging (MRI) as a prognostic predictor in patients with motor complete cervical spinal cord injury (CSCI) in the acute phase.

Design

A cross-sectional analysis.

Setting

Department of Orthopaedic Surgery, Spinal Injuries Center.

Participants/methods

Forty-two patients with an initial diagnosis of motor complete CSCI (AIS A, n = 29; AIS B, n = 13) within 72 h after injury were classified into the recovery group (Group R) and the non-recovery group (Group N), based on the presence or absence of motor recovery (conversion from AIS A/B to C/D) at three months after injury, respectively. The Neurological Level of Injury (NLI) at the initial diagnosis was investigated and the presumptive primary injured segment of the spinal cord was inferred from MRI performed at the initial diagnosis. We investigated whether or not the difference between the presumptive primary injured segment and the NLI exceeded one segment. The presence of a difference between the presumptive primary injured segment and the NLI was compared between Groups R and N.

Results

The number of cases with the differences between the presumptive primary injured segment and the NLI was significantly higher in Group N than in Group R.

Conclusion

The presence of differences between the presumptive primary injured segment and the NLI might be a poor improving prognostic predictor for motor complete CSCI. The NLI may be useful for predicting the recovery potential of patients with motor complete CSCI when combined with the MRI findings.

Comprehensive rehabilitation treatment for sub-acute COVID-19 patients: an observational study.

Federica Bertolucci, Laura Sagliocco, Martina Tolaini, Federico Posteraro
Eur J Phys Rehabil Med2021 Apr;57(2):208-215.

Abstract

Background

COVID-19 is a respiratory infection, but it should be considered as a systemic illness with increasing interest on the survivors' sequelae and their management. Considering multi-organ disabilities, a comprehensive rehabilitation provided in sub-acute phase could be considered a suitable setting for these patients.

Aim

The aim of this article was to report the features and rehabilitative outcomes of patients requiring rehabilitation due to disabilities related to severe COVID-19 infection.

Design

Longitudinal Observational Study.

Setting

Department of Rehabilitation in General Hospital.

Population

Patients showing multiple disabilities due to severe COVID-19 infection.

Methods

Thirty-nine consecutive patients were admitted to a rehabilitation ward transferred from ICU or Medical wards. Barthel Index (BI) and Functional Ambulation Categories (FAC) were scored as disabilities measures. Data regarding comorbidity, rehabilitation course, swabs, procedures in acute phase, non-respiratory manifestations, dysphagia, mental confusion, PaO2/FiO2, oxygen supplementation have been collected to admission and discharge. For all patients a comprehensive rehabilitation treatment have been provided.

Results

Functional outcome is good with a statistically significant improvement in BI and FAC scores. Thirty-eight patients were discharged at their home. Mean lenght of stay (LOS) in acute wards was 46 days. Mean LOS in rehabilitation was 20 day. Eleven patients still had tracheostomy at admission, none at discharge and all dysphagic patients recovered a normal oral feeding. The change in PaO2/FiO2 and the reduction of the oxygen supplementation testify a good recovery of pulmonary function.

Conclusions

Our results showed a consistent recovery with little caregiver burden at discharge. Fast relocation from ICU makes beds available which are very valuable during pandemic. Comprehensive rehabilitation treatment provided in sub-acute phase for patients still positive for SARS-CoV-2, would be desirable as it seems to be an effective setting. In this setting a strong medical assistance must be ensured.

Clinical rehabilitation impact

The activation of comprehensive rehabilitation settings able to assist sub-acute patients still positive would be desirable as it could be a very efficient Healthcare Systems answer to the catastrophic pandemic, decompressing acute hospital as well. Furthermore, contagious patients with swabs positivity affected by other kind of disabilities (i.e. Stroke, Femur Fracture) can be treated avoiding to lose the early rehabilitation.

Robotic-assisted gait rehabilitation following stroke: a systematic review of current guidelines and practical clinical recommendations.

Rocco S Calabrò, Gregorio Sorrentino, Anna Cassio, Davide Mazzoli, Elisa Andrenelli, Emiliana Bizzarini, Isabella Campanini, Simona M Carmignano, Simona Cerulli, Carmelo Chisari, Valentina Colombo, Stefania Dalise, Cira Fundarò, Valeria Gazzotti, Daniele Mazzoleni, Miryam Mazzucchelli, Corrado Melegari, Andrea Merlo, Giulia Stampacchia, Paolo Boldrini, Stefano Mazzoleni, Federico Posteraro, Paolo Benanti, Enrico Castelli, Francesco Draicchio, Vincenzo Falabella, Silvia Galeri, Francesca Gimigliano, Mauro Grigioni, Stefano Mazzon, Franco Molteni, Giovanni Morone, Maurizio Petrarca, Alessandro Picelli, Michele Senatore, Giuseppe Turchetti, Donatella Bonaiuti, Italian Consensus Conference on Robotics in Neurorehabilitation (CICERONE).
Eur J Phys Rehabil Med. 2021 Jun;57(3):460-471.

Abstract

Introduction

Stroke is the third leading cause of adult disability worldwide, and lower extremity motor impairment is one of the major determinants of long-term disability. Although robotic therapy is becoming more and more utilized in research protocols for lower limb stroke rehabilitation, the gap between research evidence and its use in clinical practice is still significant. The aim of this study was to determine the scope, quality, and consistency of guidelines for robotic lower limb rehabilitation after stroke, in order to provide clinical recommendations.

Evidence acquisition

We systematically reviewed stroke rehabilitation guideline recommendations between January 1, 2010 and October 31, 2020. We explored electronic databases (N.=4), guideline repositories and professional rehabilitation networks (N.=12). Two independent reviewers used the Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument, and brief syntheses were used to evaluate and compare the different recommendations, considering only the most recent version.

Evidence synthesis

From the 1219 papers screened, ten eligible guidelines were identified from seven different regions/countries. Four of the included guidelines focused on stroke management, the other six on stroke rehabilitation. Robotic rehabilitation is generally recommended to improve lower limb motor function, including gait and strength. Unfortunately, there is still no consensus about the timing, frequency, training session duration and the exact characteristics of subjects who could benefit from robotics.

Conclusions

Our systematic review shows that the introduction of robotic rehabilitation in standard treatment protocols seems to be the future of stroke rehabilitation. However, robot assisted gait training (RAGT) for stroke needs to be improved with new solutions and in clinical practice guidelines, especially in terms of applicability.

In Spasticity,

℞ Antispastic

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Backing Possibilities

Supports patients initiatives programs

MAKE A MOVE AFTER STROKE

CREATING POSSIBILITIES IN CEREBRAL PALSY

Abridged Prescribing Information (BACLOF)
Active Ingredient: each tablet of BACLOF contains: baclofen 10, 25 mg, BACLOF liquid contains baclofen 5mg/5ml, 100 ml bottle. **Indication:** treatment of spasticity resulting from multiple sclerosis, particularly for the relief of flexor spasms and concomitant pain, clonus, and muscular rigidity. **Dosage:** Tablets: Initiate with a low dosage, preferably in divided doses, administered orally. Increase gradually based on clinical response and tolerability. The maximum dosage is 80 mg daily (20 mg four times a day). When discontinuing, reduce the dosage slowly. Liquid: adults: One 5ml spoonful (5mg) 3 times a day for 3 days; Two 5ml spoonfuls (10mg) 3 times a day for 3 days; Three 5ml spoonfuls (15mg) 3 times a day for 3 days; Four 5ml spoonfuls (20mg) 3 times a day for 3 days. Elderly: Small doses should be used at the start of treatment, the dose being titrated gradually against the response, under careful supervision. Paediatric population (0 to <18 years): A dosage of 0.75-2mg/kg body weight should be used. In children over ten years of age, however a maximum daily dosage of 2.5mg/kg body weight may be given. Treatment is usually started with half a 5ml spoonful (2.5mg) given 4 times daily. The recommended daily dosages for maintenance therapy are as: 12 months – 2 years: Two to four 5ml spoonfuls (10-20mg), 2 years – 6 years: Four to six 5ml spoonfuls (20-30mg); 6 years – 10 years: Six to twelve 5ml spoonfuls (30-60mg). **Contraindications:** hypersensitivity to baclofen or any component of this product. **Warning and precautions:** Abrupt discontinuation of baclofen has resulted in serious adverse reactions including death; therefore, reduce the dosage slowly when baclofen is discontinued. Neonatal withdrawal symptoms can occur; gradually reduce the dosage and discontinue baclofen before delivery. Baclofen can cause drowsiness and sedation. Patients should avoid the operation of automobiles or other dangerous machinery until they know how the drug affects them. Advise patients that the central nervous system effects of baclofen may be additive to those of alcohol and other CNS depressants. Baclofen can cause exacerbation of the following: psychotic disorders, schizophrenia, or confusional states; autonomic dysreflexia; epilepsy. Use with caution in patients with these condition. **Pregnancy & Lactation:** Pregnancy: Based on animal data, may cause fetal harm. At recommended oral doses, baclofen is present in human milk. There are no human data on the effects of baclofen on milk production and on breastfed infant. **Interaction:** CNS depressants like benzodiazepines, antihistamine, antipsychotic, and alcohol etc., may cause increased sedative effects. Morphine (epidural) may cause hypotension and dyspnea. Laboratory Test Interactions may cause false elevation of AST (aspartate aminotransferase), alkaline phosphatase, or blood glucose. **Adverse reactions:** most common drowsiness, dizziness, and weakness. **Overdose:** Symptoms: Patients may present in coma or with progressive drowsiness, lightheadedness, dizziness, somnolence, accommodation disorders, respiratory depression, seizures, or hypotonia progressing to loss of consciousness. Treatment: includes gastric decontamination, maintaining an adequate airway and respirations. (Prepared on 23rd Feb 2020. It is recommended to refer full prescribing information before prescription. For further medical information, please write to: Intas Pharmaceuticals Ltd., Corporate House, Near Sola Bridge, SG highway, Thaltej, Ahmedabad-380054, Gujarat, India. productqueries@intaspharma.com.)

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