

BOOK OF ABSTRACTS



**CANADIAN ASSOCIATION OF
PHYSICAL MEDICINE AND
REHABILITATION**

ANNUAL SCIENTIFIC MEETING

**June 12-16, 2002
Gull Harbour Resort & Conference Centre
Hecla Island, Manitoba**

BOOK OF ABSTRACTS



02-01

CARE MAP FOR OUTPATIENT REHABILITATION OF BURN PATIENTS: A PRELIMINARY REPORT

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Introduction: *Care Map* is a multidisciplinary guide for patient care, which outlines the temporal sequence of care (i.e., consults, test, interventions, discharge planning) and focuses on patient outcomes. While *Care Maps* have been developed for different clinical settings (e.g., aortocoronary bypass, total knee replacement, asthma), there is no previous experience with burn patients. The purpose of this study was to design, implement and evaluate a *Care Map*, called *Care Plan*, for the rehabilitation of burn patients in the outpatient burn clinic of a rehabilitation hospital. Methods: The *Care Plan* for outpatient rehabilitation of burn patients was developed to guide interdisciplinary care with pre-scheduled assessments, on first consultation, days 30, 90, 180, and 1 year, using outcome measures to evaluate burn knowledge, quality of life, physical, functional and psychological status. Outcome measure questionnaires were translated into different languages (e.g., Cantonese, Portuguese) to facilitate patients understanding. Trend reports were then used to guide treatment and discharge planning during team meetings, (including patient, rehabilitation professionals and a Workplace Safety and Insurance Board representative) scheduled after each assessment interval. Since January 2001, consecutive burn patients admitted to this outpatient rehabilitation program have been randomized to the *Care Plan* (study group) or the regular care (control group). Unpaired t-test for continuous variables and Chi-square for categorical variables, were used to compare the rehabilitation outcomes of both patient groups. A $p < 0.05$ was considered significant. Results: Of nine patients enrolled in the study, five patients were randomized to the *Care Plan* group and four patients to the Control group. Patients in both groups have similar mean age (32 years vs. 36 years), mean weight (72 kg vs. 64 kg) and mean height (171 cm vs. 176 cm). English was the first language in all patients of the Control group, and other language was the first language in the majority (80%) of the *Care Plan* patients. There were no significant differences, between patient groups, in burn knowledge, quality of life, physical, functional and psychological status. Control patients were more satisfied with the outpatient rehabilitation program and reported better hand function than *Care Plan* patients (table).

Patient Group	English 1 st language	Patient Satisfaction	Michigan Hand Questionnaire
<i>Care Plan</i>	20%	91.6%	49.5%
Control	100%	97.9%	66.8%
P value	0.016	0.015	0.046

Conclusions: These preliminary results indicate that Control patients were more satisfied with the rehabilitation program and had better hand function than *Care Plan* patients. The language barrier (e.g. translation vs. English) and more scheduled assessments could play a role in the lower satisfaction with the rehabilitation program of *Care Plan* patients.



02-02

THE USE OF ALTERNATIVE THERAPIES IN THE SASKATCHEWAN STROKE REHABILITATION POPULATION

Dr. Jeff Blackmer (University of Ottawa) and Dr. Ludmilla Jefromova (University of Saskatchewan)

Objectives

Many rehabilitation patients use alternative therapies for health problems. The purpose of the current study was to determine the percentage of stroke rehabilitation patients in Saskatchewan using alternative therapies, how often those patients who used alternative therapies discuss this fact with their primary care doctor and the main reason why patients might not discuss their use of alternative therapies.

Methods

Telephone questionnaire surveys were conducted with 117 patients who had suffered a stroke and undergone inpatient or outpatient rehabilitation at Saskatoon City Hospital.

Results

The study revealed that 26.5% of 117 stroke rehabilitation patients visited alternative practitioners at least once or used some form of unconventional therapy. Of those who used alternative therapy, 61.3% did not discuss this fact with their primary physician. Many of the respondents (47.3%) who did not inform their physician stated that they did not see the necessity of talking about these treatments, 31.5% reported that their doctor never asked about any alternative treatment and 21.1% did not discuss the issue with their physician because they felt that he or she might disapprove of alternative therapies.

Conclusion

Doctors should be aware that a significant number of patients will try or have tried alternative treatment without discussion with their primary care physician or specialist. The current study suggests that after completing routine questioning, doctors should routinely ask their patients about using alternative therapies and, when appropriate, review issues of safety and efficacy. Adding alternative therapies to the curriculum of medical schools might be beneficial.

02-03

NATURE OF AFTER-HOURS CALLS AT A TERTIARY LEVEL REHABILITATION CENTRE

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Objectives: To determine the incidence and nature of calls for on-call physicians after hours at a tertiary-level rehabilitation centre.

Design: Prospective survey over one year.

Setting: A tertiary-level rehabilitation centre with 65 beds.

Participants: Residents, clinical associates and staff physicians covering call.

Main Outcome Measures: Number of calls over one year, types of calls, medical issues dealt with, time spent in centre after hours dealing with calls.

Results: There was an overall response rate of 75%. There were 467 calls received in the 274 days for which surveys were returned. Of these, 53% of calls were for medication orders, 36% for medical issues, 7% for procedures, and 5% for incidents.

Conclusions: On-call staff are called a median of once per night for a 65 bed unit. The most common call is for medication orders. House-staff are required to come in about once in every nine calls (11%), and stay less than an hour in most cases.



02-04

BONE OVERGROWTH AFTER TRAUMATIC AMPUTATION IN THE ADULT PATIENT

NL Dudek & MB Marks

Bone overgrowth of the residual limb following an amputation is a well documented complication in the pediatric amputee population. Bone overgrowth can cause pain, problems with skin breakdown and poor prosthetic fit. There have been no reports in the peer reviewed literature of bone overgrowth in the adult amputee. Two cases of traumatic transfemoral amputations following extensive tissue damage are presented. The two patients in question successfully completed an inpatient amputee rehabilitation program and achieved functional ambulation with their prostheses. However, both patients developed distal residual limb pain within a year following their amputations. The pain significantly limited the amount of time they could wear their prostheses and the distance they could walk. Radiographs demonstrated additional bone growth in the residual femur and adjacent soft tissues in both patients. These case examples demonstrate that bone overgrowth should be considered in the differential diagnosis of residual limb pain in the adult amputee.

02-05

THE IMPORTANCE OF SOCIAL STRUCTURES AND HUMAN INTERACTIONS IN RETURNING TO WORK AFTER AN OCCUPATIONAL SOFT TISSUE INJURY.

Raymond Baril, Judy Clarke, John Frank, Margaret Friesen, Jaime Guzman, Susan Stock and Annalee Yassi for the Work-Ready Researchers. Funded by research grant from HEALNet

Objective: To describe the views of occupational health stakeholders about facilitating factors and barriers to return to work after occupational soft tissue injuries.

Methods: Injured workers, occupational health nurses, human resources and health and safety managers, union representatives, rehabilitation professionals and insurer representatives in Manitoba, Ontario and Quebec were asked: What have you found to be the challenges/barriers in facilitating worker recovery and return-to-work after a soft tissue injury? What solutions have you tried/observed that work? Interviews were audio taped, transcribed and analyzed using ATLAS.ti and Q.S.R.NUD*IST qualitative research software.

Results: Interviews included 108 informants from 31 manufacturing and services firms from public and private sectors (<50 to >5000 employees). While a few barriers or facilitating factors could be assigned to the attitudes or actions of one stakeholder, most of them arose during interactions between stakeholders. Three kinds of factors were mentioned: a) Interactions within the workplace including elements of the workplace culture, organizational structure and work organization, b) Interactions outside the workplace, particularly those involving the health care system and the disability insurance system, and c) The characteristics of the social, economic and regulatory context which modulated the interactions. Type and severity of injury, and worker age and gender were felt less influential. Most interviewed stakeholders felt that return-to-work succeeds when the interactions are characterized by open communication, commitment to the return-to-work process and trust in the other stakeholder.

Conclusions: The importance granted by stakeholders to human interactions and social factors is compatible with social or biopsychosocial models of disablement. Those involved in facilitating return-to-work should consider all three kinds of factors and promote constructive interactions between the stakeholders.



02-06

PROBLEM-BASED WORKSHOPS TO DECREASE OCCUPATIONAL DISABILITY

Jaime Guzman, Arlene Ward, Annalee Yassi and John Frank for the Work-Ready Researchers. Funded by research grant from HEALNet

Objective: Previous studies suggested that differences in the perspectives of occupational stakeholders and in their interpretation of existing evidence were a barrier for decreasing work disability after injury. We set out to test problem-based workshops as a tool to build stakeholder dialog and common understanding.

Methods: Four mixed stakeholder workshops in BC, Manitoba and Ontario. Workshops used small-group problem-based learning principles and nine injured worker vignettes. Groups were asked to agree on what went wrong in each case and on ways to improve the situation. Groups were then asked to critique written feedback on the scientific evidence bearing on the situation. Evaluation included a knowledge and attitudes survey before, after and 3 months after the workshop, and audio taping and observation of the workshops.

Results: 72 of the 76 participants completed pre and post-workshop evaluations. Participants described their professional role as facilitating or coordinating return-to-work (n=40), assessing or adjudicating disability claims (n=22) and diagnosing or treating injured workers (n=12). Most participants (93%) said they would recommend the workshop to a colleague. All workshop components were considered useful or very useful by at least 50 participants. The concept of applying research findings to return-to-work issues found widespread support. The problem-based format effectively engaged participants and allowed in-depth discussion of their perspectives. The interaction with other participants and the opportunity to hear other perspectives were considered the most valuable aspects of the workshop (by 44 and 20 participants respectively). The mean knowledge and attitudes scores improved for up to three months after the workshop (p<0.001).

Conclusions: Interactive mixed stakeholder workshops to discuss injured worker vignettes are an effective way to initiate dialog and improve knowledge and attitudes about occupational disability among occupational stakeholders from different backgrounds.

02-07

DOES PROSTHETIC WEIGHT AFFECT GAIT SPEED AND PATIENT PREFERENCE IN DYSVASCULAR TRANSFEMORAL AMPUTEES?

Ben Meikle, MD, Chris Boulias, MD, PhD, Tim Pauley, MSc, Michael Devlin, MD

Objective: To determine if increased prosthetic weight affects gait speed in dysvascular transfemoral amputees and to see if there is any patient preference for lighter versus heavier prostheses.

Design: Randomized prospective double-blind cross over trial.

Setting: Out patient, tertiary care, amputee clinic.

Subjects: A convenience sample of 10 subjects with unilateral transfemoral amputations due to peripheral vascular disease. All subjects were independent community ambulators over the age of 50.

Intervention: Identical appearing weights of 150g (placebo weight), 770 g, and 1625 g were added to the prosthesis 14 cm below the knee joint.

Main Outcome Measures: Two minute walk test and subject preference.

Results: The 2 minute walk test results were not significantly influenced by weight added (mean 53.4m, 55.1m, and 52.8m for 150g, 770g, and 1625g added respectively) with a small trend towards improved performance with 770 g added. Subject preference revealed a trend toward preference of a weighted prosthesis over the “placebo” weight. with 5 subjects preferring 770 g added, 4 subjects preferring 150 g added, and 1 preferring 1625 g added.

Conclusions: The available data do not support a standard prescription of expensive lightweight prosthesis for all transfemoral amputees.



02-08

CANADIAN UNDERGRADUATE MEDICAL EDUCATION EXPOSURE TO PHYSIATRY - RESULTS OF A SURVEY

Joy Y.M. Wee, MD, FRCPC

Objective: The purpose of this survey was to detail types of physiatry involvement in the education of medical students, and to determine if the development of national guidelines for medical education in the field of physiatry would be supported.

Methods: This survey was conducted as part of an initiative by the medical education committee of the Canadian Association of Physical Medicine & Rehabilitation (CAPMR). A letter and questionnaire was sent to each Director of Undergraduate Medical Education in Physical Medicine & Rehabilitation (PM&R) at academic centres across the country where there have existed residency training programs in the field. Survey responses were requested to be returned through the postal system.

Results: Completed questionnaires were received from nine of eleven centres, six of seven provinces. Involvement of physiatrists in medical education teaching varies from centre to centre. Exposure of medical students to physiatry concepts ranges from minimal to mandatory. Survey results are summarized. All respondents expressed support for the development of national guidelines for PM&R teaching in the undergraduate medical education curriculum

Conclusion: The level of medical student exposure to physiatry varies from one medical school to the next. There appears to be physiatry support in from most centres for the development of national guidelines for undergraduate medical education in Physical Medicine & Rehabilitation.

02-09

A PRELIMINARY STUDY OF THE EFFICACY OF ONDANSETRON IN THE TREATMENT OF ATAXIA, POOR BALANCE, AND INCOORDINATION FROM BRAIN INJURY

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Background: Ataxia is caused by a variety of different diseases and can lead to problems with imbalance, incoordination of extremities and other disabilities. Current treatment is largely symptomatic and includes physio and occupational therapies. Ondansetron (a 5-HT₃ antagonist) is a safe medication that has been established for use as an anti-emetic in cancer patients, but has recently been suggested to have beneficial effects on vertigo and cerebellar tremor.

Hypothesis: Ondansetron can improve symptoms of ataxia, imbalance and incoordination in four traumatically brain injured patients.

Design: Placebo controlled, double blind, crossover, 'n of 1' study, A-B-A design.

Subjects: Five patients with ataxia resulting from acquired brain injury (either traumatic brain injury or cardiovascular accident) recruited from the Acquired Brain Injury Unit, or Day Hospital.

Results: Ondansetron did not consistently improve scores in tests of upper extremity ataxia, lower extremity ataxia, truncal ataxia, patient self-assessment or overall function in five patients.

Conclusion: There is insufficient data to indicate that there is a benefit in using Ondansetron for ataxia, incoordination or imbalance resulting from an acquired brain injury. Further investigation is therefore warranted.



02-10

A MODEL FOR PHYSICIAN FUNDING OF PROGRAM DEVELOPMENT ACTIVITIES AS A TOOL TO ENHANCE PHYSICIAN INTEGRATION INTO INTERDISCIPLINARY TREATMENT TEAMS

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Objective: To determine the quantity and nature of physician program development (not associated with direct patient care) time required to integrate physicians into an interdisciplinary diagnostic and rehabilitative management program for chronic pain from start-up until 12 months of operation.

Methods: A billing schedule was developed with categories for describing the type of activities in which physicians may engage which were relevant to Centre activities including: team program development, centre program development, program development projects/meeting preparation, quality improvement, evaluation, professional development*, self-directed learning*, teaching/presentations* –providers, students and general public, and research* (*funded with prior consent). Five participating physicians who worked at the Centre from 1.0 to 2.5 days per week were requested to submit monthly time sheets specifying the hours and category of activity in order to be paid a fixed hourly rate for these activities. Satisfaction by physicians and Centre staff with the program development funding arrangement was assessed by external outcome evaluators.

Results: Total program development hours submitted by the five physicians in year 1 was 1387. Both physicians and Centre staff indicated satisfaction with this funding model.

Conclusions: This funding model was an effective tool to enhance the integration of physicians into interdisciplinary rehabilitation teams.

02-11

AMBULATION AID USE DURING THE REHABILITATION OF PEOPLE WITH LOWER-LIMB AMPUTATIONS

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a) Objective: To describe the nature of ambulation aid use during the rehabilitation of people with lower-limb amputations.

b) Methods: This was a descriptive study carried out in a rehabilitation center. We studied 37 people with recent lower-limb amputations, and a mean (SD) age of 68 (13) yr. Subjects were evaluated each weekday, a mean (SD) of 16.4 (7.7) sessions per subject, documenting the type of ambulation aid used during ambulation training. As the main outcome measure, we used the Hierarchical Assessment of Ambulation Aids (HA3).

c) Results: The mean (SD) number of aids per person was 2.9 (1.0). The percentage of subjects who used each aid (presented in the mean order in which they were first used) were 76% parallel bars (HA3 Grade 1), 60% four-footed walkers (Grade 2), 81% two-wheeled walkers (Grade 3), 11% two crutches (Grade 5), 8% four-wheeled walkers (Grade 4), 46% two canes (Grade 6) and 14% one cane (Grade 7). The highest HA3 grade achieved was 4.5 (1.9).

d) Conclusions: People with lower-limb amputations generally each use a number of ambulation aids as they progress through their rehabilitation. These findings have implications for prescription, funding and training.



02-12

A PILOT PROJECT OF PHYSICIAN-CENTERED ADMINISTRATIVE AND EDUCATIONAL INTERVENTIONS TO REDUCE DISABILITY AFTER WORK INJURIES

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Objective: To test the feasibility of physician-centered administrative and educational interventions to help reduce disability after work injuries. Preliminary meetings with physicians and occupational stakeholders suggested these interventions would be acceptable and sustainable if proven effective.

Methods: Factorial two-by-two administrative and educational intervention pilot trial on two Manitoba rural communities, two emergency departments and two urban clinics. All physicians in one community, one emergency department and one urban practice (selected at random) were invited to test a discussion sheet to facilitate workplace accommodation of injured workers. Half of the physicians in each of the six settings (selected at random) were invited to a problem-based simulated-patient workshop on helping workers recover after injury.

Results: All but one of the approached clinic leaders consented to help test the discussion sheet. Physicians in the urban clinic withdrew within a week citing lack of time to discuss work accommodation with the worker and fears that the discussion sheet would generate phone calls from the workplaces, one other clinic contacted as replacement declined to participate for similar reasons. The clinics remaining in the trial used the sheet in up to 30% of their patients with work injuries. None of the forty physicians invited to the workshop registered, 13 of them cited scheduling difficulties and other reasons in a follow up survey.

Conclusions: Physician-centered interventions deemed acceptable and sustainable by occupational health stakeholders were not feasible in the current context of usual primary care practice in Manitoba. They would need to be coupled with interventions to motivate physicians involvement.



02-13

ADAPTIVE SYNOVIOCYTE PROLIFERATION CHARACTERISTICS IN THE FIRST 32 WEEKS OF KNEE JOINT CONTRACTURES

GUY TRUDEL, MAHA JABI and HANS K. UHTHOFF

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^{1,2}G. Trudel MD, MSc, Associate Professor, ³Maha Jabi MD, Associate Professor and ^{1,4}Hans K. Uthoff MD, Emeritus Professor.

Objective. We aimed at characterizing synoviocyte proliferation during joint contracture.

Methods. We immobilized the knee joints of 24 rats for periods of 2, 4, 16 or 32 weeks to study the development of contractures in flexion (with tension on the anterior but not the posterior capsule). Twenty-four rats had sham operations and five normal rats served as controls. On sagittal sections, synoviocytes that stained with a proliferating-cell-nuclear-antigen antibody were counted over the synovial intima. An index of proliferating synoviocytes per unit of length of synovium was calculated.

Results. In immobilized knees, proliferating synoviocytes increased post-intervention, but were below normal 16 and 32 weeks after surgery (16 weeks: 7.4 ± 2.7 and 32 weeks: 8.9 ± 3.8 vs 35.9 ± 10.6 , both $p < 0.05$). The synovial intima of contracted knees was shorter than normal specimens at all times after surgery, significant after 2 and 32 weeks (2 weeks: 15.62 ± 1.00 mm and 32 weeks: 12.70 ± 1.43 mm vs 20.32 ± 0.93 mm, both $p < 0.05$). Initially, more proliferating synoviocytes and shorter intima length caused the mean synoviocyte proliferation index of both immobilized and sham-operated legs to rise sharply above normal values. Thereafter, immobilized knees had lower synoviocyte proliferation indices than sham-operated knees, significant 16 and 32 weeks after surgery (16 weeks: 0.50 ± 0.18 vs 2.77 ± 1.09 ; and 32 weeks: 0.76 ± 0.31 vs 2.86 ± 0.64 , both $p < 0.05$).

Conclusion. Decreased proliferating synoviocytes adapting to a decreased intima length confirmed that immobility induced no specific synoviocyte proliferation. This adaptative phenomenon is novel and characterizes joint contractures. It invalidates the prominent pathophysiologic hypothesis of pannus formation.



02-14

DEVELOPMENT OF A PARTICIPANT-QUESTIONNAIRE TO ASSESS CONTINUING MEDICAL EDUCATION PRESENTATIONS

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Purpose

Use of participant evaluation of continuing medical education (CME) activities has not been studied in detail. The purpose of this study was to develop a reliable and valid participant-questionnaire to assess the quality of CME presentations.

Methodology

The instrument was tested in two phases using physicians as raters and evaluating CME presentations. For each phase, a Generalizability Analysis was conducted to determine the measurement properties of the questionnaire and correlations were used to review the quality of the items. Revisions were made based on the results from each phase. In Phase 1, the content of a 19-item questionnaire was derived by reviewing the literature and interviewing experts in CME. A six point Likert Scale was used to rate each item. In Phase 2, a nine-item questionnaire was developed and a seven-point Likert scale was used for each item.

Results

Nine presentations were evaluated in Phase 1. Generalizability coefficients were moderate to high (5 raters/lecture = .61, items = .93, overall scale = .61). Three factors (presenter, presentation and content) emerged from a factor analysis accounting for 71% of the variance. In Phase 2, six presentations were evaluated. Generalizability coefficients were high (13 raters/lecture = .86, items = .94, overall scale = .85).

Conclusions

This 9-item, participant-questionnaire provides a reliable measure of the quality of CME presentations. The questionnaire is a valuable tool for CME providers assessing the quality of the activities they sponsor. The usefulness of the results of this questionnaire, as a source of feedback to presenters, requires further assessment.



02-15

RETURN TO DRIVING FOLLOWING LOWER EXTREMITY AMPUTATION

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Objectives:

To study the driving behaviours of people with major lower extremity amputations and to determine the factors which influence their return to driving of motor vehicles after their amputation.

Design:

A cross sectional study was performed using a convenience sample.

Setting:

All data was collected from patients attending an out-patient amputee/prosthetics clinic located in a tertiary rehabilitation center in Toronto, Canada.

Patients:

A total of 123 individuals who attended the outpatient amputee clinic between the dates of February, 2001 and September, 2001 were used in the study. These were all adults with unilateral or bilateral major lower extremity amputation, one year or later after they were fit with a prosthesis. They were all active automobile drivers within 6 months prior to amputation.

Results:

The subjects had an average age of 63.4 ± 12.1 years and were on average 6.8 ± 8.3 years since amputation. Common causes for amputation were peripheral vascular disease (73.2%), trauma (13.8%), and tumour (12.2%). Overall, 80.5% of amputees were able to return to driving an average of 3.8 months after amputation, although the majority reported a decreased driving frequency. Predictors of return to driving included age, age at time of amputation, period of time since amputation, gender, side of amputation and pre-amputation driving frequency. Items that did not have a statistically significant association with return to driving included level of amputation, reason for amputation, pre-amputation automobile transmission and accessibility to public transit. Left sided amputees have significantly less concerns regarding driving, while right amputees frequently require vehicle modifications (40.6%) or switch to a left foot driving style for braking (81.3%) and accelerating (65.6%). Common barriers to return to driving included preference not to drive, lack of confidence/fear, and related medical conditions.

Conclusions:

The majority of amputees are able to return to driving following major lower extremity amputation. Major automobile modifications are commonly performed by right-sided amputees. Several predictors of return to driving and barriers preventing return to driving were identified.



02-16

A NEW FEEDING ORTHOSIS FOR THE HEMIPARETIC STROKE PATIENT

Hillel M. Finestone MD, William Furcher OT, Louise Laporte OT, Julie Legault RN, Julie Bourbonnais PT, Catherine Stalker SLP

Organization:

SCO Health Service - Saint-Vincent Hospital -
Department of Physical Medicine and Rehabilitation

The purpose of this poster is to demonstrate a new feeding orthosis for hospitalized hemiparetic stroke patients. A patient with a right fronto-parietal stroke with profound left hemiparesis and neglect had difficulty opening the individual peanut butter, margarine and jam containers that are routinely offered on an inpatient stroke rehabilitation unit. Via Para-Transpo, he visited a plastics manufacturer who constructed a device which 1) firmly rests on a flat surface, 2) grips the food containers, and 3) allows the patient to open and scoop the product using only one arm. The device will be demonstrated and the process of the rehabilitation team's development of it will be outlined.

02-17

MAGNETIC RESONANCE IMAGING CHANGES IN THE HEMIPARETIC LIMBS OF STROKE PATIENTS

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Organization:

SCO Health Service - Saint-Vincent Hospital -
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London Health Science Centre - University of Western Ontario
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Introduction/Hypothesis:

The purpose of this study was to describe changes that could potentially occur in the skeletal muscle of hemiparetic lower extremities of stroke patients. We hypothesized that specific peripheral limb muscle changes would develop as a sequela of the central stroke event.

Method:

A subset of rehabilitating inpatients, part of a larger study examining acute phase proteins and potential loss of muscle mass in stroke patients, was evaluated. Magnetic Resonance Imaging studies were performed on both the affected and un-affected lower extremities, at the level of the gastrocnemius-soleus complex.

Results:

The investigators searched for the presence of focal edema, fatty infiltration, atrophy, and dilated veins, and measured transverse diameters. Focal edema was noted in the gastrocnemius and/or soleus muscles of 6/12 hemiparetic limbs. Two of the 6 patients had evidence of bilateral focal edema. One case of focal edema occurred in an un-affected limb. Subcutaneous edema was present bilaterally in one patient. The muscle edema was confined to the hemiparetic side except for one case.

Conclusion:

This preliminary study, the first of its kind, demonstrated that peripheral muscular focal edema changes occurred in the hemiparetic lower extremity of stroke patients. Determining this finding's relevance to stroke patients' presentation of weakness and loss of function is the next challenge.



02-18

CHANGES IN NUTRITIONAL MARKERS DURING THE FIRST THREE WEEKS POST STROKE: A COMPARISON OF DYSPHAGIC AND NON-DYSPHAGIC PATIENTS.

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Objective: There has been some evidence to suggest that dysphagia may be associated with malnutrition post stroke. The purpose of this study was to compare changes in nutritional parameters of dysphagic and non-dysphagic stroke patients during the first 21-days following stroke.

Methods: Dysphagia was identified on admission to hospital by a bedside swallowing assessment. Patients with dysphagia were initiated on either texture-modified diets or enteral feeding, while non-dysphagic patients received regular diets. Nutritional information was collected prospectively within five-days of admission to hospital and again at day 21. Biochemical markers of nutritional status included serum albumin, prealbumin and Total Lymphocyte Count (TLC). Anthropometric indicators included Body Mass Index (BMI) (weight kg/ height m²) and Body Cell Mass (BCM), an indirect measure of muscle mass, obtained through bioelectrical impedance analysis. Differences between the two groups from admission to day 21 were examined using repeated measures ANOVAs. Changes in nutritional data from admission to day 21 were examined separately in both dysphagic and non-dysphagic patients using paired t-tests.

Results: Ninety-one patients were enrolled in the study. Forty-eight were dysphagic on admission and 30 remained so at day 21. Comparison of the nutritional indices between dysphagic and non-dysphagic patients (either recovered or had never been dysphagic) over time indicated that there was a significant decline in albumin levels of the dysphagic patients relative to the non-dysphagic patients, however all values remained within the normal range. There were no significant differences between the groups over time in any of the other four nutritional markers. At day 21 non-dysphagic patients had not experienced any significant changes in biochemical markers of nutritional status from admission, although there was a statistically significant decline in BMI (25.9" 4.3 vs. 25.5" 4.3, p=0.009). Dysphagic patients experienced a significant increase in prealbumin within the normal range from admission to day 21 (0.20" .05 vs. 0.25" .05, p<0.0001), but significant declines in both BMI (27.2" 4.7 vs. 26.2" 4.2, p=0.002) and BCM (24.0" 7.0 vs. 22.6" 6.8, p<0.0001).

Conclusions: Serum albumin levels of dysphagic stroke patients decreased significantly, while remaining within the normal range, compared to non-dysphagic patients. Dysphagic and non-dysphagic patients experienced similar, significant declines in measures of weight and muscle. Dysphagic stroke patients are not more vulnerable to negative changes in nutritional markers relative to their non-dysphagic counterparts; successful, early introduction of enteral and modified dysphagia diets may be the reason for this finding.



02-19

**USE OF CADEXOMER IODINE IN THE TREATMENT OF DIABETIC AND ARTERIAL ULCERS:
NINE CASE REPORTS**

Dr. A. Arneja MD, FRCPC, & B. Davis RN, BN, CACE

Introduction

Complications from diabetes affecting the feet are a common occurrence. This unfortunately can lead to amputation in many patients. In most circumstances involving an amputation, an ulcer which progresses to infection or gangrene is the preceding event (reference # 1).

Method

Nine participants were randomly selected from the outpatient amputee clinic. All had long standing wounds (1-3years). They were seen in clinic once a week for dressing change. Wounds were cleansed with normal saline. Cadexomer iodine was the main product applied. Four participants were using oral antibiotics when treatment started, none when finished. Wounds ranged in size from 2cm to 9cm in diameter.

Results

No complications were observed. All were healed in 1 to 5 months. Participants acted as their own control. One participant had bone and tendon exposed prior to treatment, another was lost to surgical intervention. One participant had 2 wounds, giving us a total of 10 healed.

Discussion

Cadexomer iodine is a product in which iodine 0.9% has been physically incorporated into a modified starch matrix. This slow release iodine has been shown to reduce bacterial count on wound surface and significantly accelerate re-epithialization (reference #2). Interdisciplinary collaboration in our Rehabilitation outpatient amputee clinic has resulted in successful wound management. Attention to the participants' needs and the ingenious use of state-of-the-art technology may help the wound care provider to meet the challenge of wound healing.

References

1. Pecoraro, R.E. et al (1990). Pathways to diabetic limb amputation: basis for prevention. *Diabetes care*. 13(4):513-521.
2. Harding, K.G. et al (1997). Wound care: putting theory into practice, *chronic wound care: a clinical source book for healthcare professionals*:115-123.



02-23

IMPLICATIONS OF CARDIAC DISEASE FOR AEROBIC TRAINING IN STROKE REHABILITATION

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Recent interest in the role of aerobic exercise in stroke rehabilitation has led to numerous studies examining the potential physiological and functional outcomes of such training programs. It is known that there is a high rate of concomitant cardiac disease in patients with stroke, but the effect this has on aerobic training in this population has not been thoroughly investigated. This paper explores the impact of heart disease on stroke rehabilitation in general, and specifically considers the implications for diagnostic and functional exercise stress testing in studies of aerobic training for stroke patients. It also provides recommendations for future research initiatives with a goal of clarifying the influence of both symptomatic and asymptomatic heart disease on stroke rehabilitation outcomes.



02-32

INTERRUPTIONS TO AMPUTEE REHABILITATION

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Objective: To determine the frequency of interruptions to in-patient amputee rehabilitation, and to identify the causes, risk factors and consequences of these interruptions.

Design: Retrospective cohort study.

Setting: In-patient amputee rehabilitation service.

Patients: 254 consecutive patients admitted within 90 days of amputation

Results: Interruptions occurred in 76 patients (30%). Impaired stump healing caused 46 (18%) interruptions and acute medical illness caused 26 (10%), while 4 (2%) interruptions were due to other causes. Higher incidence of interruption was associated with female gender, peripheral vascular disease, and decreased days from amputation to rehabilitation. The majority of patients with interruptions (60/76, 79%) returned to complete rehabilitation. Patients with interruptions had significantly longer rehabilitation length of stay (48.5 vs. 37.0 days, $p < 0.001$), but functional outcome measures at rehabilitation discharge were similar between those patients who returned to complete rehabilitation following interruption and those patients without interruption.

Conclusions: Interruptions to amputee rehabilitation are common and result in longer rehabilitation length of stay but do not adversely affect rehabilitation outcomes in those who are able to return to complete rehabilitation. No subgroup of patients with exceptionally high incidence of interruption could be identified.