How to perform inspiratory muscle training for patients with spinal cord injury in praxis?

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INTRODUCTION

Decreased respiratory muscle function is one of the disabilities that are frequently reported post spinal cord injury (SCI). Newly performed studies and reviews point towards intensive Inspiratory muscle training (IMT) with as high resistance as 80% maximal inspiratory pressure (MIP) may be most effective. The objective of this poster is to exemplify a practical setup of IMT in daily praxis.

METHODS

Therapists at the Spinal Cord Injury Centre of Western Denmark, have experimented with different IMT protocols since 2017. Based on clinical experience and recent literature we propose a practical setting for performing IMT and measuring clinical progress.

RESULTS

We propose a setting of IMT starting with; screening for eligibility and patient practice of IMT 1-2 weeks before starting an intervention period; baseline measure with MIP test and spirometry; high intensity IMT (60-80% of MIP) and follow-up measure after 3 and 6 weeks. Clinical measures should include measures of lung function MIP and spirometry, measures on perceived excertion (BORG-CR-10) and Quality of life (SCI).

CONCLUSION

There is no clinical guideline for best praxis of IMT in patients with SCI although increasing literature suggest that a variety of settings may have clinical effect. The proposed procedure of IMT training and measurement is based on experience and recent literature and may serve as a practical guide in daily clinical practice at the moment.

Bowel Management Pathways for Spinal Cord Injury Patients in the Nordic Countries

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INTRODUCTION
We aimed to explore the similarities and differences of bowel management programs in-between the spinal cord injury (SCI) units in the Nordic countries, with focus on the newly injured patients.

METHODS
Descriptive observational study. We used collaborative learning through building a network of nurses from the Nordic Countries. We reached out to the different units through email, phone calls and Facebook and had our meetings over Skype. We collected information such as treatment options, bowel programs, guidelines and protocols from the rehabilitation units and the information gathered was shared in a common Dropbox folder and then reviewed and categorized.

RESULTS
All five Nordic Countries contributed with material; 11 rehabilitation units are represented. The general result of the analysis was that the Nordic countries all followed the general international guidelines and that there were a lot of similarities. Some of the differences identified were: the patient's independence, timeline before changing method, referral to urotherapist, the patient's experience, abdominal overview with x-ray for tetraplegics, information about how to be sure rectum is empty, use of chewing gum to promote peristalsis and involvement of other professions.

CONCLUSION
The clinics actually had more in common regarding how to treat bowel management for newly injured SCI patients than we thought, considering the discussion at NoSCoS in Copenhagen 2019. We also identified the need of collaborations between professionals in order for knowledge and research to be shared but also to avoid the problem of "reinventing the wheel".

Change in fat mass volumes the first year after a traumatic spinal cord injury using a rapid MRI-protocol – a case report

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INTRODUCTION

Spinal cord injury (SCI) leads to deterioration in body composition, characterized by a reduction of lean body mass and an increase in adipose tissue. Here, we present unique data on changes in body composition the first year after traumatic SCI from one case in an ongoing prospective study, using a rapid whole-body magnetic resonance imaging (MRI) protocol.

METHODS

MRI (Siemens Aera 1.5T) were performed on two occasions using the AMRA® Profiler analysis (AMRA Medical AB, Linköping, Sweden); within 10 days and 12 months after a traumatic SCI. The biomarkers characterized were Visceral Adipose Tissue (VAT), Subcutaneous Adipose Tissue (SAT), Thigh Muscle Volume and Muscle Fat Infiltration. Body weight (kg) was assessed on admission to intensive care, during inpatient rehabilitation and at 12 months post-SCI.

RESULTS

A 49 year old male admitted to intensive care with traumatic SCI, injury level C4, with no motor but some sensory function below the lesion, weight 70 kg (BMI: 22.6 kg/m2). Involuntary weight loss of 2.2 kg during 21 days of acute hospitalization and 3.8 kg during 3 months of inpatient rehabilitation. At 12 months, weight increased to 74 kg (BMI: 23.9 kg/m2), corresponding to a weight gain of 10 kg. Compared to baseline, thigh muscle volume decreased with 26 %, VAT increased with 170 %, SAT increased with 109 %, and muscle fat infiltration increased with 109 % at 12 months post-SCI.

CONCLUSION

The rapid whole body MRI-protocol provide detailed information on changes in body mass and fat mass volumes post-SCI.

Medical Form

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INTRODUCTION

Being admitted to a hospital, acute or for a planned procedure, can be a cause of great stress for persons living with spinal cord injury (SCI). The general knowledge of SCI can be low at an emergency or a general ward. This increases the risk of secondary complications occurring, such as pressure ulcers or experiencing autonomic dysreflexia due to not being properly pain relieved. The spinal cord injury also can mask common symptoms - leading to later diagnosis. To avoid unnecessary complications the idea came up to create a medical form for persons living with SCI.

METHODS

The Department of Rehabilitation Medicine in Linköping in collaboration with the Spinalis Foundation produced a medical form where spinal cord injury specific ”red flags” are listed. There is contact information to the patient’s rehabilitation unit stated in order for other health care professionals to consult. It is suggested that the document is filled out by the patient with SCI together with his/her physiatrist. The filling out of the document also gives the patient a better understanding of his or her prerequisites and a greater sense of control. The document can then be brought by the patient as support and a checklist of what needs to be specially considered when going to primary care, the emergency room or specialist care.

RESULTS

The medical form is today incorporated in the clinical work at the Department of Rehabilitation Medicine. Before a newly injured patient is discharged, the doctor together with the patient reviews what complications could be relevant and creates a personalised document.

CONCLUSION

This document is a cost-efficient way to avoid unnecessary secondary complications that may occur when a person with a spinal cord injury is admitted to hospital.

Temporal changes in demographic and injury characteristics of traumatic spinal cord injuries in Nordic countries - a systematic review with meta-analysis

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INTRODUCTION

Study design: Systematic review with meta-analysis.
Objectives: To explore temporal changes in incidence rates, demographic and injury characteristics of incident traumatic spinal cord injury (TSCI) in Nordic countries.

METHODS

Peer-reviewed publications and periodic reports about epidemiology of TSCI in the Nordic countries (Denmark, Finland, Iceland, Norway, Sweden) are identified, reviewed and included in the meta-analysis. Data are stratified into 20-year intervals to allow for chronological comparisons. Pooled estimates are derived using random effects meta-analysis.

RESULTS

Twenty-three data sources are included presenting a total of 5,416 cases. The pooled incidence rate for 2001-2020 is 15.4 cases/million/year compared to 17.6 and 18.3 cases/million/year during the two previous 20-year intervals. The proportion of cases with TSCI in the 15-29 age-group decreases from 50% (1961-1980) to 20% (2001-2020), while it increases from 9% to 35% in 60+ age-group. Transportation-related injuries decrease from 44% (1961-1980) to 27% (2001-2020). Conversely, fall-related injuries increase from 32% (1961-1980) to 46% (2001-2020). The proportion of cases with incomplete tetraplegia increases from 31% (1961-1980) to 43% (2001-2020), while complete paraplegia decreases from 25% to 16%.

CONCLUSION

The characteristics of TSCI in the Nordic countries have changed drastically over the last six decades, in line with clinical experiences, and limited research evidence from other countries. These changes indicate the need for adapting research focus, prevention strategies, design and provision of care, rehabilitation and community services towards older individuals, fall-related injuries, and incomplete injuries in Nordic countries and other settings internationally where such changes occur.

Evaluation of a home-based tele-exercise program during the COVID-19 pandemic for people living with disabilities following illness or injury.

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INTRODUCTION

The COVID-19 lockdown posed a significant risk of adverse consequences – both physically, psychologically, and socially – for individuals living with disabilities following illness or injury. Specialized Hospital for Polio and Accident Victims therefore developed a home-based tele-exercise setup guided by experienced healthcare professionals. The aim was to help our target group maintain their current level of functioning and avoid social isolation and loneliness.

METHODS

The project lasted 10 weeks and included 90 live sessions of 45 minutes on Facebook and 10 videos of 30 minutes on YouTube. Evaluation questionnaires were sent to participants at week 5 and week 10, and selected participants and members of staff were interviewed. Data were analyzed with statistical analyses, content analysis, and thematic analysis.

RESULTS

At week 5, 101 individuals responded to the questionnaires, and 72 responded at week 10. Between 94.8-95.2% of respondents were satisfied with the program, and 86.2-91.5% experienced positive results, especially increased well-being and better functioning. In terms of sociality, 37.4% experienced a social element of the program, and 29.8% felt that they were less lonely because of it. Specifically, knowing that other people were exercising at the same time supported this feeling. Importantly, 83.3% could see home-based tele-exercise as part of their usual program in the future.

CONCLUSION

Home-based tele-exercise programs help maintain function and well-being, and live sessions can help mitigate loneliness. Participants were very satisfied with the program, and it might be a useful supplement to regular in-person exercise routines during and after rehabilitation.