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Original

Virtual course in spinal cord injury care

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Introduction
The complexity of health conditions in spinal cord injury (SCI) demands planning and preparation of patients and families for continued care post-discharge. Health providers must be proficient in the daily care of these patients. A virtual course can aid this education strategy through short, point-of-care online tutorials.
Objective
To describe the creation and implementation of an online course for health professionals to provide quality SCI patient care and caregiver orientation.
Methods
The virtual course "Basic Care to the SCI Patient" was developed on Windows/2007. Videotexts were created using Word & PowerPoint/2010, arranged with Movie Maker/2012.
Results
Eleven topics were identified as crucial for training in basic SCI patient care: 1) Understanding SCI, 2) What is rehabilitation,: 3) Functional goals in SCI, 4) in Cervical SCI, 5) in Thoracic SCI, 6) in Lumbosacral SCI, 7) Care for hospitalized SCI patients, 8) Skin care, 9) Intermittent vesical catheterization (clean technique), 10) Bowel training, and 11) Understanding and managing complications in SCI patients.
Discussion
Living with SCI requires patients and caregivers to adapt to a new lifestyle by learning and applying health measures. Health professionals have an opportunity to teach them skills, though their knowledge is often fragmented. Digital learning can expedite therapeutic team training, ensure complete information transmission, and provide continuous consultation access.
Conclusion
Health education via virtual tools promotes quality of life. In SCI, it offers access to specialized knowledge for health professionals, facilitating patient, family, and community education. These tools require tutors—usually expert health professionals—to be familiar with technology.

Keywords: Aftercare, Catheterization, Health education, Point-of-care systems, Quality of life, Spinal cord injury

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Introduction

The range and complexity of health conditions in patients with spinal cord injury (SCI) require planning and implementation of assistance directed to prepare patient and family for continuing care after discharge. This approach aims at reducing time until initiation of rehabilitation program and preventing disruptions of its continuity. These setbacks may happen due to insufficient knowledge of these conditions and their appropriate daily care.

To achieve such goal the entire team of health providers must be proficient at the daily care of these patients. A virtual course can be part of this continuing education strategy. Short, point-of-care online tutorials on a variety of topics associated with care to neurosurgical patients can be grouped into courses.

This paper aims to describe the creation and implementation of an online course to prepare health professionals of different backgrounds in providing quality care to SCI patients and meaningful orientation to caregivers

Methods

The virtual course "Basic Care to the Patient with Spinal Cord Injury" was created on Windows/2007 operational system. Videotexts were created using Word & PowerPoint/2010 and arranged using Movie Maker/2012.

Results

Using a dual-focus rehabilitation strategy with patient- and caregiver-centered goals (Table 1), eleven topics were considered important for virtual training of health professionals in the basic care for patients with SCI. 1) Understanding SCI, 2) What is SCI rehabilitation, 3) Functional goals in SCI, 4) Functional goals in cervical SCI, 5) Functional goals in thoracic SCI, 6) Functional goals in lumbosacral injuries 7) Caring of the hospitalized patient with SCI, 8) Skin care and ulcer prevention in SCI 9) Intermittent vesical catheterization - Clean technique 10) Bowel training for patients with SCI, 11) Understanding and handling complications in patients with SCI.

For each topic, virtual modules were created. Each module of the educational course was created obeying the concept of nuclearism and consisting of a) Introduction, b) Learning objectives, c) Video or video tutorial in the topic, d) Recommended reading (Figure 1).

Table 1: Dual-Focus Rehabilitation Strategy: Patient-Centered Goals and Caregiver Empowerment

Moment	Focus	Patient	Caregiver
During hospitalization	Acute and subacute phase training as an early intervention approach aimed at reducing delays in initiation and interruptions in the rehabilitation program caused by complications stemming from a lack of understanding of the new condition and its required care.	Skin Sphincters Transfers	Recognition Awareness-raising Training
After discharge	Subacute and chronic phase training as a consolidation of the goals established in the previous phase, with an expanded focus on instrumental activities of daily living, vocational reintegration, and leisure.	Sexual life Job reintegration or vocational redirection Leisure	Adaptation Support Training

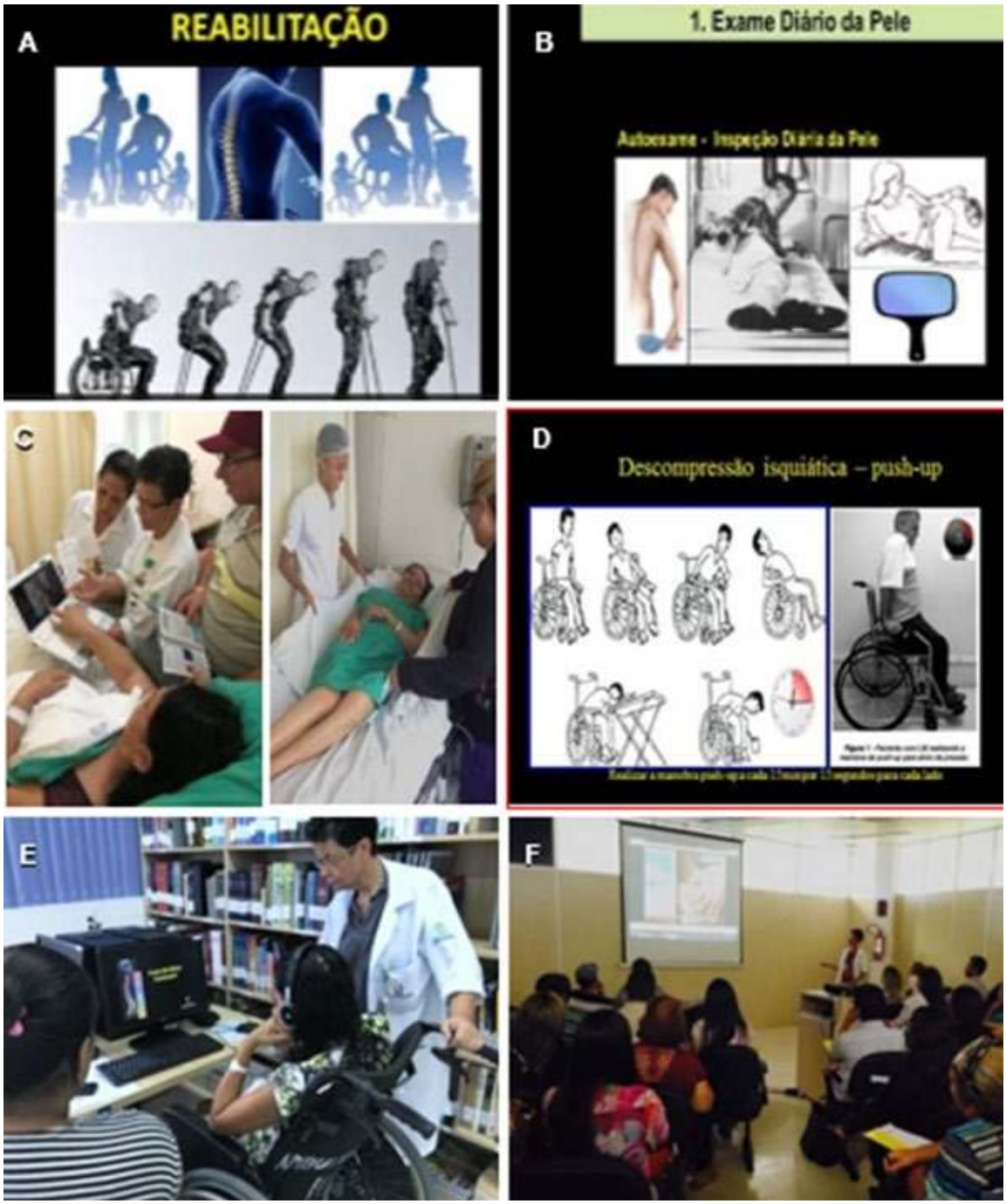

Figure 1. Skin care, sphincter control and mobility are up front goals during care of hospitalized non-critical SCI patients. A. Excerpt from the videotext "Rehabilitation in SCI". B. Excerpt from the videotext "Daily Skin Self-exam". C. Hospitalized patients and their caregivers can be trained using these virtual strategies, facilitating subsequent in-person training. D. Segment from the videotext "Daily Skin Self-exam" focused on skin relief for wheelchair-bound patients. E. In-person training in a "flipped classroom" mode can then be conducted with post- discharge patients and caregivers in outpatient follow-up. F. The virtual course in Basic Care for the "SCI Patient" can be the first step in theoretical-practical training, followed by clinical case discussions, talk circles, and in-person Q&A sessions.

Discussion

Living with spinal cord injury requires the individual and his/her caregiver to adapt to a new lifestyle, constantly applying and monitoring health data. This adaptation involves learning new skills and competencies specific to the patient's reality (1–3).

Health professionals are the main vehicle for teaching patient-caregivers in the SCI scenario (4). However, knowledge about the care required for this category of patients is limited and fragmented even among health professionals working in specialized units (4–6) . Specialized health content comprised in a digital learning environment can speed up training of members of the therapeutic team, may ensure complete transmission of information needed for care, provides unlimited media for consultation and extends beyond the walls of the Health Units and the working hours of the continuing education team (7).

However, to achieve these objectives and be meaningful to patients/caregivers the virtual course needs to curate, structure, and prioritize knowledge, reflecting the best professional practice in the subject. Professionals trained and experienced in assisting SCI patients should be familiar with technology and master techniques and methods of creating virtual teaching modules to ensure the success of this chain of events (8). Standardization of the stages of creation of virtual teaching tools facilitates this process and guarantees the engagement of representative tutors (7). To our knowledge, the virtual course "Basic Care for the SCI Patient" is 1) the first course of this type in Portuguese language, 2) aimed at educating health professionals of different backgrounds 3) in the daily routines and aims of care of the SCI patient, 4) that can be directly translated to their caregiver and 5) replicated after discharge. Combination of this virtual content with practical training, discussions and live interactions as well as flipped methodology, can and have been used (7).

Conclusions

Health education – supported by virtual tools – is an instrument for promoting people's life quality. In SCI scenario, it provides health professionals of different backgrounds access to specialized technical knowledge in adequately managing SCI patients. SCI-instructed health providers facilitate patient, family and community education. Virtual tools such as these require Tutors who are experts in their fields and familiar with technology.

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