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Short Communication

Spinal cord injury in the Moroccan healthcare system: A country case study

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ABSTRACT

In this article, the authors report an overview of the healthcare management of People with Spinal Cord Injury living in Morocco. The authors' experience in monitoring neurologic recovery and rehabilitation expectations and outcomes are also presented. In addition to the epidemiological data, the patient journey through the chain of care, living with Spinal Cord Injury, the health and rehabilitation system are discussed. This paper illustrates well the suffering of people with Spinal Cord Injury specifically and of disabled persons in general living in low and middle-income countries, especially with the lack of access to specialized and quality rehabilitation facilities and shortage of healthcare workers specialized in rehabilitation.

Introduction

Spinal Cord Injury is a life and function threatening condition that is also very costly to both the individual and the community regarding healthcare expenses (Chan et al., 2019). Traumatic SCI affects each year nearly 1 million persons around the world (James et al., 2019) and results in long-term disability, negatively impacting the quality of life and the participation of its survivors (Frontera and Mollett, 2017). Hence, medical care of SCI goes beyond the acute phase taking place in ICUs and neurosurgery wards to encompass a long-term patient-tailored rehabilitation and a life-long follow-up with a bio-psycho-social approach according to the WHO recommendations (Prodinger et al., 2016). It has been established that barriers to timely, adequate and comprehensive healthcare management of SCI significantly influences mortality, leads to poorer health outcomes and worsens the burden of disability (World Health Organization, 2011). In Morocco, specific data about SCI is quite unavailable making it very hard to implement efficient policies in order to improve the quality of healthcare and social services specifically designed for persons sustaining SCI. The aim of the present paper, was to provide an overview on the current state of care destined to people with traumatic SCI in Morocco from the lesion to social and professional reintegration in the society.

Methods

This country case study was accomplished using several methods for gathering of relevant and reliable information. A comprehensive review of the medical literature was conducted within Medline and Google Scholar databases using the keywords: (spinal cord injury) AND (Morocco). Further, official websites of the Ministry of health, the Ministry of solidarity and other governmental and non-governmental institutions, were scrutinized to gather every relevant information regarding the organization of care and services offered to persons with SCI (as a subcategory of persons living with disability). Further, the authors conducted interviews with stakeholders (Emergency and Intensive care physicians, Neurosurgeons, Rehabilitation specialists, Allied health professionals, and hospitals' administrative staff), and patients sustaining SCI from 5 different Moroccan regions. Those interviews took place from January to March 2019 and were focused on sharing these workers and patients' experiences regarding SCI, and confronted with the main authors' clinical experience in the field of disability and rehabilitation. Data extracted from all these sources was then organized into different areas of interest in order to provide an overview of the healthcare journey undergone by persons with SCI, from the lesion site to the reintegration into society phase, and to highlight their struggles and barriers within the healthcare system.

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Results and discussion

Epidemiological data

Epidemiological data on SCI is very scarce in Morocco, mainly due to the lack of a national SCI registry and very common coding inconsistencies in most healthcare information systems. The global burden of disease study 1990–2016, had reported an estimated incidence of traumatic SCI in Morocco at 2466 cases per year and an estimated prevalence of 242 cases per 100.000 inhabitants in 2016 with an increase of 9.8% from 1990 to 2016 (James et al., 2019). Very little is published on the demographics or epidemiological patterns of people with SCI in Morocco, as most published Moroccan articles on the topic mainly consisted of case reports. The only available data were derived from the second national survey of disability conducted in 2014 (Hajjioui et al., 2019; Ministry of Solidarity, 2014).

According to this survey, persons living with SCI in Morocco had an average age of 55.8 years, were mostly paraplegic (82%), females (52.2%), married (50%), illiterate (81.6%), unemployed (62%), and without a healthcare insurance coverage (58%) (Ministry of Solidarity, 2014). These SCI had a traumatic origin in 57% of cases, and were mainly caused by motor vehicle accidents, followed by falls from height (Ministry of Solidarity, 2014).

No data are available on the mortality and life expectancy of persons with SCI in the Moroccan population. However, based on our clinical experience, we believe that patients with SCI have a limited live expectancy compared to the general population in Morocco.

The patient journey through the chain of care

When a person sustains a SCI, most commonly in the context of traffic accidents, work accidents, or assaults, he/she is transported to the nearest healthcare facility via an ambulance, which usually takes over than one hour to collect the patient. This relatively significant delay-which is difficult to accept when the accident's site is within the city can be explained by the shortage of both vehicles and staff along with other technical problems related to delay of response over the hot phone lines. Most of the ambulances are basic large vehicles lacking resuscitation materials. The rescuing crew usually consists of civil protection workers, without trained nurses nor medical practitioners. These civil protection workers are not specifically trained to deal with SCI, and they are not qualified to perform life-saving procedures onsite.

The ambulance would conduct the patient to the healthcare facility within its corresponding administrative territory even if it is not qualified to receive such highly critical injuries. Consequently, the patient will have to endure an additional waiting time to be admitted, examined then referred to the nearest University or major hospital containing a neurosurgery department, highlighting a significant issue in the coordination of urgent care. Regardless of their healthcare insurance availability and regimen, all patients sustaining SCI are admitted through the ER of a major public hospital to an ICU unit if their state is critical, or to a neurosurgery ward, where they wait to be operated on.

The surgery depends on the availability of surgical material in the hospital when the patient is admitted and there are often shortages of this spine fixation surgery material. In this case the patient's family will have to purchase the needed surgery material to get the spine stabilized. Neurosurgical teams are well trained for this kind of operations but the holistic medical management before and just after the surgery with the specific nursing requirement are often lacking. There is often shortage of painkillers and anticoagulants in hospitals and patients have to purchase the medication to be delivered to them in most cases.

In the whole country, there are 10 neurosurgical departments that can manage brain and vascular surgery. We count around 200 neurosurgeons but some of them work in medical facilities where they don't have access to proper neurosurgery operating rooms and some of them work in the private sector (Ministry of Health, 2015).

Since post-acute inpatients rehabilitation centers do not exist in the public health system (Hajjioui et al., 2015a; Hajjioui et al., 2015b; UN General Assembly, 2007; Law 97.13, 2016; Economic Social and Ecological Council, 2012; Benzagmout et al., 2007; Kamaoui et al., 2007), which is the major health care provider in the country, SCI patients are home discharged immediately after the short stay (7–10 days) in Neurosurgery wards, with a prescription to undergo physiotherapy in one of the rare ambulatory rehabilitation centers that only exist in major cities with a very limited capacity. When persons with SCI succeed to get a physiotherapy appointment in the month following their injury, which is rather uncommon, they'll have to manage their own transportation means to go from home to the physiotherapy center and back, which happens to be very difficult especially when the sitting position is not possible, requiring the rent of an ambulance on the patient's expense. Most of these patients will only be granted two weekly physiotherapy sessions lasting around 30 min each, and most of the therapy will be based on orthopedic prevention (passive mobilizations of joints), as physiotherapists are not trained to give specific functional rehabilitation care like how to use a wheelchair. Consequently, a significant number of SCI patients will not receive any form of rehabilitation due to practical difficulties, mainly related to transportation and the absence of housing possibilities in the rehabilitation centers.

Although there are well-trained PRM physicians, with 25 working in the public health system, the lack of inpatient rehabilitation wards has a negative effect on the quality of care. Furthermore, the rehabilitation services provided by the general rehabilitation centers are not reliably assessed.

On the other hand, occupational therapy is not yet available, and physiotherapists are not trained to give functional rehabilitation care, such as the proper use of a wheelchair. Psychologists do not exist in public health facilities and are only available in the private sector for the patients who can pay for it.

Hence, we believe that SCI patients in Morocco have very limited access to proper medical and rehabilitation care. Moreover, based on our clinical experience, a considerable number of them would die within the first two years after injury, mainly due to bladder and/or extensive bedsores infections. Immediately after acute care, persons with SCI are given back to their struggling families. Those who manage to survive because they have enough financial resources or because they have been lucky enough are not offered any significant governmental financial or social support to be re-integrated into society. Despite the consistent efforts of non-governmental organizations (NGOs) and patients' associations, everything is yet to be organized for SCI patients in Morocco.

Living with SCI in Morocco

There is no published information on the living and wellbeing of Moroccan people with SCI in the community. Based on the authors' own experience, and the interviewed SCI persons answers, there is very limited support available in the community and people living with SCI face various obstacles to regain social activity.

Morocco signed and ratified the Convention on the Rights of Persons with Disabilities in 2009 (UN General Assembly, 2007), and has enacted laws and regulations concerning the improvement of accessibility for persons with disabilities (Law 97.13, 2016). However, the implementation of such laws is not largely achieved yet. A part from some rare neighborhoods in major cities, sidewalks, public transportation, and many public buildings are still not wheelchair accessible. Despite all the efforts made by the government and NGOs, it remains difficult for a person with SCI to return to work or to get a paid job. The unemployment rate for people with disabilities in Morocco is estimated at 47.65% according to an official study published in 2016, which is 4 times higher than in the general population (Ministry of Solidarity, 2014). It is also to mention that up to today, persons sustaining SCI do not have access to any kind of direct financial help or pension from the government (Economic Social and Ecological Council, 2012).

Conclusion

SCI has not received serious attention of policy makers within the various national governments in Morocco. Persons with SCI require more attention, especially with regard to prevention, health promotion, and rehabilitation. In this regard, it is highly recommended to conduct epidemiological and long term follow up studies to better seize the specific needs of this population living with SCI in Morocco, and to better orient healthcare policies in a way to improve SCI health outcomes and quality of life.

Author contributions

AH: First draft writing, Study design, writing, study analysis, statistical analysis, data interpretation, reviewing; MF: Technical support and supply; Data interpretation; SB: Study design, Reviewing and editing, and final approval.

CRediT authorship contribution statement

Abderrazak Hajjioui: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Writing - original draft. **Maryam Fourtassi:** Methodology; Validation; Visualization; Reviewing. **Said Boujraf:** Methodology; Visualization; Writing - review & editing; Validation; Supervision.

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Ethics statement

Do not apply.

Conflicts of Interest

Authors declear to not have any conflict of interests to declear.

Data availability statement

Data used to build the manuscript is available upon request.

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