Epidemiology of traumatic spinal cord injury in Haapsalu Neurological Rehabilitation Centre from 2004-2008

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Summary

The present retrospective study was conducted to analyze the causes, demographics and medical data of traumatic spinal cord injury (SCI) in Haapsalu Neurological Rehabilitation Centre from 2004 to 2008. Case histories and clinical database were used for patients’ data collection treated in Haapsalu Neurological Rehabilitation Centre as well as the records from Estonian Road Administration (traffic accidents) and Tallinn University of Technology (outside temperature) were reviewed for the analysis of the epidemiological factors. Motor vehicle accidents and falls were found to be the leading causes of traumatic spinal cord injury. It was concluded that the prevention should be focused mainly on the mentioned factors in order to reduce the frequency of traumatic spinal cord injury in Estonia.

Introduction

Spinal cord injury (SCI) due to trauma is not a common condition, but it has major functional, medical, and financial effects on the injured person, as well as an important effect on the individual's psychosocial well-being (DeVivo 2002). Many countries have established SCI databases (DeVivo et al 2002, Levi & Eriksen 1998, O'Connor 2000, Pagliacci et al 2003, Walter et al 2002), however it is clear that it is necessary to have comparable data elements so that services affecting worldwide outcomes of people with SCI can be assessed and compared (Biering-Sørensen et al 2006). For those countries that seek to develop or upgrade an SCI database, the ability to learn from the experience of others is critical. As data may be used to secure and/or maintain financial support for SCI services, data standards must be high and selection of data fields carefully examined.

In Haapsalu Neurological Rehabilitation Centre (HNRC) most of Estonian traumatic SCI patients are rehabilitated after intensive medical care in regional hospital. Over
the last 50 years HNRC has developed into a modern rehabilitation centre mainly specialized on adults and children with different neurological conditions. The majority of patients are people with spinal cord injuries and brain damage. Two main indications for the present research are the following: at first there is no common registry of spinal cord injured patients in Estonia and secondly epidemiology of SCI seems to have changed during the last decades presenting higher percentage of tetraplegia and of complete lesions (Wyndaele & Wyndaele 2006).

The present retrospective study was conducted to analyze the causes, demographics and medical data of traumatic spinal cord injury (SCI) in Haapsalu Neurological Rehabilitation Centre from 2004 to 2008.

Materials and Methods

In this study case histories and clinical database was used for patients’ data collection treated in Haapsalu Neurological Rehabilitation Centre as well as the records from Estonian Road Administration (traffic accidents) and Tallinn University of Technology (outside temperature) were reviewed for the analysis of the epidemiological factors.

All patients with traumatic spinal cord injury treated in HNRC between 2004-2008 irrespective of the reason of trauma and financing conditions were included to the present study. The patients who had nontraumatic spinal cord lesion or only fracture of vertebrae without any neurological deficit were excluded from the present study. Standard statistical methods were used.

Results

Two hundred and twenty five traumatic SCI cases were treated in Haapsalu Neurological Rehabilitation Centre from 2004 to 2008. 81% of them were male and 19% female. Average age (mean ± SD) was 31.9±13.6. Age groups at the moment of trauma were the following: 21-30 years (34%), 31-40 years (23%), 9-20 years (21%); 41-50 years (9%), 51-60 years (7%) and older than 60 (6%) (Figure 1). One hundred and twenty three of the treated patients were new traumatic SCI cases in HNRC.
The most common causes of injury were motor vehicle accidents (35%) followed by falls (31%), diving (15%), unknown causes (9%), gunshot injuries (3%) and other injuries (7%) (Figure 2). We found statistically significant correlation between outside temperature and the number of diving accidents in summer.

Conclusions

Motor vehicle accidents and falls were found to be the leading causes of traumatic spinal cord injury. It was concluded that the prevention should be focused mainly on the mentioned factors in order to reduce the frequency of traumatic spinal cord injury in Estonia.

References

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