

PROJECT BHTRM: NEW STRATEGY OF MONITORING AND ACTING IN SPINAL CORD INJURIES IN THE CITY OF BELO HORIZONTE

PROJETO BHTRM: NOVA ESTRATÉGIA DE MONITORAMENTO E ATUAÇÃO NO TRAUMA RAQUIMEDULAR DA CIDADE DE BELO HORIZONTE

PROYECTO BHTRM: NUEVA ESTRATEGIA DE MONITOREO Y ACTUACIÓN EN LAS LESIONES DE LA MÉDULA ESPINAL EN LA CIUDAD DE BELO HORIZONTE

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ABSTRACT

Objective: The BHTRM Project aims at studying the epidemiology of TRM in the city of Belo Horizonte and providing the means to monitor these patients. **Method:** To assess the efficacy and solvability of the project, two groups of patients treated at the João XXIII Hospital were compared in two distinct periods. Group 1 - from May 1, 2011 to July 31, 2011, months of project initiation and Group 2 - from December 1, 2012 to February 28, 2013. **Results:** Despite the 34% increase in the number of assisted patients, there is a 30% drop in the average number of days of hospitalization, as well as a decrease in the average days waiting for surgery of patients requiring surgical treatment, from 10.9 to 4.84, a drop of 56%. **Conclusion:** BHTRM Project is a useful tool in public health management. It optimizes the treatment of patients with spinal trauma by decreasing the time between admission and surgery. Also provides active monitoring of patient care and ensures better integration of rehabilitation care.

Keywords: Spinal injuries/epidemiology; Spinal injuries/diagnosis; Epidemiological monitoring.

RESUMO

Objetivo: O Projeto BHTRM tem como objetivo estudar a epidemiologia do trauma raquimedular (TRM) na cidade de Belo Horizonte e fornecer meios de monitoramento desses pacientes. **Método:** Para avaliação da eficácia e resolubilidade do projeto, comparamos dois grupos de pacientes atendidos no Hospital João XXIII, em dois períodos distintos. Grupo 1: de 1º de maio de 2011 a 31 de julho de 2011, meses de início do projeto e Grupo 2: de 1º de dezembro de 2012 a 28 de fevereiro de 2013. **Resultados:** Apesar do aumento de 34% no número de pacientes atendidos, observa-se uma queda de 30% na média de dias de internação, assim como a diminuição na média de dias de espera para cirurgia dos pacientes que necessitavam tratamento cirúrgico, de 10,9 para 4,84, uma queda de 56%. **Conclusão:** O Projeto BHTRM é uma ferramenta útil em gestão de saúde pública. Otimiza o tratamento do paciente com trauma raquimedular, diminuindo o tempo entre internação e cirurgia. Oferece acompanhamento ativo do paciente assegurando melhor atendimento e inserção dos cuidados de reabilitação.

Descritores: Traumatismos da coluna vertebral/epidemiologia; Traumatismos da coluna vertebral/diagnóstico; Monitoramento epidemiológico.

RESUMEN

Objetivo: El Proyecto BHTRM fue creado con el objetivo de estudiar la epidemiología de la TRM en la ciudad de Belo Horizonte y proporcionar medios para monitorear estos pacientes. **Método:** Para evaluar la eficacia y la solvencia del proyecto, se compararon dos grupos de pacientes tratados en el Hospital João XXIII, en dos períodos distintos. Grupo 1 - 01 de mayo de 2011 al 31 de julio de 2011, los meses del inicio del proyecto y Grupo 2 - 01 de diciembre de 2012 al 28 de febrero de 2013. **Resultado:** A pesar del aumento del 34% en el número de pacientes atendidos, hay una caída de 30% en el promedio de días de hospitalización, así como una disminución en el promedio de días en espera para cirugía de los pacientes que requieren tratamiento quirúrgico, 10,9 a 4,84, una disminución del 56%. **Conclusión:** El proyecto BHTRM es una herramienta útil en la gestión de la salud pública. Optimiza el tratamiento de pacientes con trauma espinal, disminuyendo el tiempo entre la admisión y la cirugía. Proporciona vigilancia activa de la atención al paciente y garantiza la mejor integración de los servicios de rehabilitación.

Descriptores: Traumatismos vertebrales/epidemiología; Traumatismos vertebrales/diagnóstico; Monitoreo epidemiológico.

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INTRODUCTION

The treatment of traumatic spinal injuries (spinal cord injury – SCI) represents a challenge to medical professionals and professionals from related areas, often leading to incapacitating complications, with a detrimental effect on the lives of accident victims, as well as social and economic repercussions.¹

In the city of Belo Horizonte, in the Brazilian state of Minas Gerais, as in every large urban center, despite the work of the emergency care and rehabilitation care teams, there are notable instances of failures and challenges to be overcome for the adequate treatment of patients suffering from spinal cord injuries, as well as a large number of institutions involved. (Table 1)

The BHTRM Project was created in April 2011, with the purpose of studying the epidemiology of SCI in the city of Belo Horizonte, in the Brazilian state of Minas Gerais, and providing means of monitoring these patients, assisting in the management of victims, from their admission to the emergency unit up until the choice of a surgical conduct and rehabilitation, acting as a facilitator and catalyst between the institutions involved in the treatment of these victims.

Table 1. Institutions related to the care of SCI in the municipality of Belo Horizonte, Minas Gerais, Brazil.

Institution	Relationship	Action/Purpose
Municipal Health Department	Municipal	Monitor/Management
BHTRM Project	Municipal	Monitor/Management
Ventilar Project	Municipal	Rehabilitation
SAMU/COBOM	Municipal	Pre-hospital
Magnetic Resonance Service – Hospital das Clínicas of the Universidade Federal de Minas Gerais (UFMG)	Federal	Diagnosis
Hospital Pronto Socorro João XXIII	State	Primary Care
Hospital Risoleta Tolentino Neves	Municipal	Primary Care
Hospital Odilon Behrens	Municipal	Primary Care
Hospitals Affiliated to SUS (Unified Health Care System)	Private	Primary Care
Private Hospitals – Supplementary Network		Primary Care
Hospital Maria Amélia Lins	State	Primary Care
Hospital das Clínicas	Federal	Primary Care
PSF (Family Health Program)	Municipal	Monitor
SAD (Homecare Service)	Municipal	Monitor
Hospital Sarah Kubitschek	Federal	Rehabilitation
Hospital Cristiano Machado	State	Rehabilitation
Hospital Paulo de Tarso	Private	Rehabilitation

METHODS

The BHTRM Project is a partnership between the Universidade Federal de Minas Gerais (UFMG), the Municipal Health Department of Belo Horizonte (SMSPBH), and the Fundação Hospitalar do Estado de Minas Gerais (FEHMIG), through an agreement made by and between the Surgical Department of the School of Medicine of UFMG and the Accident and Emergency Management Unit (GEUG) of SMSPBH.

Financing for the project comes from the Serviço de Atenção Domiciliar (Homecare Service) of SMSA/PBH – SAD; University Extension Program of UFMG.

The team is composed of: three project coordinators, an orthopedist with experience in spinal surgery (24-hour week job contract from the Municipal Government of Belo Horizonte); a neurosurgeon with experience in spinal surgery (24-hour week job contract from the Municipal Government of Belo Horizonte); two nurses (24-hour week job contract from the Municipal Government of Belo Horizonte), and eight undergraduate students enrolled in the medicine course at the School of Medicine of UFMG.

The physical resources consist of: a room, two mobile phones, a computer, a printer, a file for medical records, office supplies; medical record folders, pages for developments; availability of a car from the Municipal Health Department.

The service functions as follows: as soon as a patient with SCI is admitted to the accident and emergency medical service of the public emergency room, the BHTRM is called in. The nurse on duty answers the telephone call, goes to the requesting emergency service and starts the process of providing assistance to the patient. A specific BHTRM chart is created for follow-up from initial patient care to rehabilitation (<https://docs.google.com/spreadsheets/viewform?formkey=dEJXdmlSWVJN3lIMEFQd0lQI1XRFE6MQ#gid=0>). Nursing care is monitored throughout the treatment period, including homecare.

The project doctors, once notified by the nursing team, attend the requesting emergency service and provide advice to the team responsible for the patient care, ensuring compliance with the protocols discussed previously and prepared by the participant services.

The academics are responsible for updating the epidemiological database, issuing monthly newsletters, and taking part in the group's publications.

The data, gathered daily, is used to produce two weekly spreadsheets, which are updated by the project physicians and sent to all the people involved. A weekly meeting is held with the senior management of the institution, spinal surgeons, social service, physiotherapists and nursing staff, with the aim of optimizing inpatient care (pending exams, vests, surgery, responsible hospital discharge, etc.).

All patients living in the municipality of Belo Horizonte have responsible hospital discharge with follow-up by the team from the PSF (Family Health Program) of their respective regional unit.

To assess the efficacy and problem-solving capacity of the project, we compared two groups of patients treated at the Hospital João XXIII in two different periods. Group 1: from May 1, 2011 to July 31, 2011, baseline months of the project; Group 2: from December 1, 2012 to February 28, 2013. As parameters, we used the number of patients; deaths; hospital transfers, average number of days of hospitalization; days waiting to undergo surgical treatment.

RESULT

Despite the 34% increase in the number of patients treated, a 30% reduction was observed in the average number of days of hospitalization. There was also a reduction in the average number of days waiting for surgery for those patients requiring surgical treatment, which dropped from 10.9 to 4.84, a reduction of 56%. (Table 2)

Table 2. Comparative data between the first 3 months of project implementation and the last 3 months.

	Number of patients	Number of deaths	Number of transfers	Average number of days hospitalized	Average number of days waiting for surgical treatment
Group 1	56	13	6	19.4	10.9
Group 2	75	1	8	13.63	4.84
Percentage	34%			-30%	-56%

DISCUSSION

Spinal cord injury is a traumatic injury to the spine associated with trauma to the spinal cord. It may be complete or incomplete. Spinal cord injuries affect most of the body organs.¹

The annual world incidence of SCI is approximately 15 to 40 cases per million inhabitants.² The annual incidence in the United States is 12,000 cases.^{3,4}

In Brazil, the incidence of spinal cord injury is higher than the average global estimate. It is estimated that there are 942 new cases per month and 11,304 new cases per year.⁵ As regards distribution by sex, 80.6% of patients with spinal cord injuries are men. The causes are traffic accidents (41.7%), firearms (26.9%), falls from a height (14.8%), and diving into shallow water (9.3%).⁶

In the city of Belo Horizonte, according to data gathered at the Hospital João XXIII (reference center for the treatment of trauma victim patients in Minas Gerais), between April 2011 and December 2012, the number of patients admitted was 345, of whom 78% were male, and 67% were in an economically active age bracket (20-60 years). As regards the trauma mechanism, car accidents

and falls from heights prevailed over the other causes. As regards physiotherapy rehabilitation and social reinsertion, the situation of the municipality of Belo Horizonte was diagnosed and the results were sent to the competent managers.

Multidisciplinary teams are used to manage several areas, one of which is health. We believe that this format, which combines primary care medicine and academic research, can be reproduced in other towns and cities.

CONCLUSION

The BHTRM Project is a useful tool in public health management, as it optimizes the treatment of patients with spinal cord injury, reducing the time between admission and surgery. It offers active patient follow-up, ensuring better patient care and inclusion of rehabilitation care.

All authors declare no potential conflict of interest concerning this article.

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