

Autonomic dysreflexia and nursing interventions for patients with spinal cord injury

DISREFLEXIA AUTÔNOMICA E INTERVENÇÕES DE ENFERMAGEM PARA PACIENTES COM LESÃO MEDULAR

DISREFLEXIA AUTONÓMICA E INTERVENCIONES DE ENFERMERÍA PARA PACIENTES CON LESIÓN MEDULAR

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ABSTRACT

This retrospective study, carried out in 2009, aimed to identify nursing diagnoses and interventions for the assistance of patients with spinal cord injury. Data were collected from the nursing records of 465 patients with SCI in the rehabilitation process. The nursing diagnosis *Risk for autonomic dysreflexia* was identified in 271 clinical records (58.3%), of whom, approximately 80 patients developed *Autonomic dysreflexia*. The predominance was in young males with a mean age of 35.7 years, with trauma being the primary cause of injury and a neurological level equal to or above the sixth thoracic vertebra. Nursing interventions were arranged in two groups: the first focused on prevention and the other on treatment. An intervention guide was developed; the guide may be used by nurses in their rehabilitation practice and should be inserted in information systems. Removal of the stimulus inducing autonomic dysreflexia was identified as the most effective therapy and the best intervention.

DESCRIPTORS

Nursing process
Nursing care
Rehabilitation nursing
Autonomic dysreflexia

RESUMO

O presente trabalho trata-se de estudo retrospectivo realizado em 2009 que objetivou identificar diagnósticos e intervenções de enfermagem para o cuidado de pacientes com lesão medular (LM). Os dados foram coletados de 465 prontuários de pacientes com LM em processo de reabilitação. Identificou-se o diagnóstico de enfermagem *Risco para disreflexia autônômica* em 271 (58,3%) prontuários, dos quais 80 pacientes desenvolveram *disreflexia autônômica*. Predominaram homens jovens, com idade média de 35,7 anos, sendo o trauma a principal causa da LM e o nível neurológico igual ou acima da sexta vértebra torácica. As intervenções de enfermagem foram organizadas em dois grupos, um voltado para a prevenção da disreflexia autônômica e outro, para seu tratamento. Desenvolveu-se um guia de intervenções para uso na prática clínica de enfermeiros reabilitadores e para inserção em sistemas de informação. Ressalta-se a importância da retirada do estímulo causador da disreflexia autônômica como terapêutica mais eficaz e como melhor intervenção na prática de enfermagem.

DESCRITORES

Processos de enfermagem
Cuidados de enfermagem
Enfermagem em reabilitação
Disreflexia autônômica

RESUMEN

Estudio retrospectivos realizado en 2009 objetivando identificar diagnósticos e intervenciones de enfermería para el cuidado del paciente con lesión medular (LM). Datos colectados de 465 historias clínicas de pacientes con LM en rehabilitación. Se identificó el diagnóstico de enfermería *Riesgo para disreflexia autonómica* en 271 (58,3%) historias clínicas; 80 de tales pacientes desarrollaron *Disreflexia autonómica*. Predominaron hombres jóvenes, media etaria de 35,7 años, constituyéndose el trauma como causa principal de LM y nivel neurológico igual o por sobre sexta vértebra torácica. Las intervenciones de enfermería se organizaron en dos grupos: uno orientado a prevención de la disreflexia autonómica y otro para su tratamiento. Se desarrolló una guía de intervenciones para uso en práctica clínica de enfermeros reabilitadores y para incorporación a sistemas de información. Se destaca la importancia de retirar el estímulo que provoca la disreflexia autonómica como terapéutica más eficaz y como mejor intervención en la práctica de enfermería.

DESCRIPTORES

Procesos de enfermería
Cuidados de enfermería
Enfermería de rehabilitación
Disreflexia autónoma

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INTRODUCTION

The incidence and prevalence of spinal cord injury (SCI) and its sequelae are increasing, particularly traumatic injuries caused by urban violence. Patient survival rate after spinal cord injury has increased with medical advances. However, if there are no effective therapies to prevent possible complications, patients may have to live with physical disorders that can decrease their quality of life. Thus, rehabilitation should start as soon as spinal cord injury is diagnosed⁽¹⁾.

Health professionals and rehabilitation specialists should address the specific needs of each spinal cord injury patient to help them develop their full functional, social, emotional, spiritual and leisure potential, in addition to professional qualification potential. This process aims at preventing complications, thus decreasing rehospitalizations. The most frequent reasons for urgency assistance and rehospitalization of such patients are genitourinary and gastrointestinal complications, pneumonias, pressure ulcers, pain and autonomic dysreflexia (AD)⁽²⁻⁵⁾.

Autonomic dysreflexia is considered a medical emergency and potentially fatal. AD may occur in any patient with spinal cord injury and neurological level equal to or above the sixth thoracic vertebra (T6). AD is characterized by a sudden onset, resulting from several noxious stimuli below the injury level, which, in turn, trigger sympathetic nervous system hyperactivity. Due to spinal cord injury, the upper brain centers are unable to modulate this sympathetic discharge, resulting in increased blood pressure. Autonomic dysreflexia is characterized by an increase in the baseline blood pressure, most often from 20 to 40 mmHg. However, the systolic pressure may vary from 250 to 300 mmHg and the diastolic from 200 to 220 mmHg. AD-associated hypertension may lead to retinal detachment, stroke, convulsion, myocardial infarction and death⁽⁶⁾.

In general, during spinal cord shock, which is present in the first three months after spinal cord injury, there is no autonomic dysreflexia. Among patients developing autonomic dysreflexia, 92% will have their first event in the first year following injury. The most common noxious stimulus that may trigger autonomic dysreflexia is bladder distention, followed by rectal distention, pressure ulcer, infection, onychocryptosis, dysmenorrhea and undetectable musculoskeletal conditions. Major signs and symptoms include increased blood pressure and bradycardia; however, tachycardia, headache, blurred vision, blush, nasal congestion and sweating above the level of the injury may also be present. Below the injury, skin paleness, gooseflesh and cold extremities can be present. Additionally, anxiety, malaise, nausea, shivering, paresthesia and a precordial

pressure sensation may be present. Occasionally, patients may present with autonomic dysreflexia without overt symptoms, although with increased blood pressure⁽⁸⁾.

Autonomic dysreflexia must be rapidly and decisively treated by eliminating noxious stimuli and controlling hypertension. Rehabilitation nurses are familiarized with the diagnosis and nursing interventions to treat autonomic dysreflexia. However, due to its sudden and fast onset and potentially severe consequences, patients usually look for assistance in emergency units, which typically employ health professionals with little or no experience in the treatment of autonomic dysreflexia⁽⁸⁾.

In this scenario, a classification system for professional nursing practices is critical for the development of protocols describing assistance patterns used anywhere in the world and allowing systematic documentation by nurses that support clinical decisions made with regard to autonomic dysreflexia. In addition, this type of language provides accurate communication among nurses and various health team members⁽⁹⁾.

Autonomic dysreflexia is considered a medical emergency and potentially fatal. AD may occur in any patient with spinal cord injury and neurological level equal to or above the sixth thoracic vertebra.

Among the different classification systems, the International Classification for Nursing Practice (ICNP[®]) Version 2.0 has a multiaxial structure with seven axes: focus, judgment, action, client, location, time and means, and these terms can be inserted into a computer program or manually documented. ICNP[®] Version 2.0 was developed using *Web Ontology Language* in an ontological development environment, which is ideal for automation.

ICNP[®] is a combinatory terminology. The simplest concepts (atomic concepts) are combined to make up complex concepts (molecular). This technique provides soundness to the classification and diversifies the expression of the concepts. The idea is that the terms have the same meaning for nurses from different regions of the world. ICNP[®] improves nursing assistance by systematization, recordkeeping and quantification of nursing team actions, in addition to allowing information transfer and scientific communication⁽⁹⁻¹⁰⁾.

Medical records automation (MRA) has allowed different health professionals involved with patient assistance to directly access the record in their respective areas. The ICNP[®] used in medical records allows the development of a database for the storage and recovery of information and research data generation to improve the quality and efficiency of certain nursing procedures—in our case, nursing diagnoses for *Autonomic Dysreflexia*, *Risk for Autonomic Dysreflexia* and their respective interventions. Another major point is the possibility of defining a subset of nursing statements, diagnoses, interventions and results⁽¹⁰⁻¹¹⁾.

This study aimed at identifying nursing diagnoses *Autonomic Dysreflexia* and *Risk for Autonomic Dysreflexia*,

as well as nursing interventions to treat and prevent autonomic dysreflexia using ICNP® Version 2.0, in addition to organizing and making such information available to promote the health and wellbeing of spinal cord injury patients.

METHODS

This was a retrospective and transversal study to identify nursing interventions to prevent and treat the nursing diagnosis of *Autonomic Dysreflexia*. The study was developed in the Sarah Network of Rehabilitation Hospitals, Belo Horizonte unit – MG. This unit was chosen due to the use of ICNP® in the nursing process as the classification system for documenting nursing diagnoses, results and interventions in the electronic medical records of patients.

Data were collected by reviewing the medical records of patients above 18 years of age with a diagnosis of spinal cord injury that were admitted for adult neurological injury rehabilitation from January to December 2009. This study was approved by the institution's Research Ethics Committee, thus ensuring compliance with Resolution 196/96 of the Ministry of Health.

During 2009, 465 patients were admitted for spinal cord injury neurological rehabilitation. All nursing records of that year and demographic and clinical variables were transferred from the electronic medical record to Access for Windows to check for the presence of nursing diagnoses of *Risk for Autonomic Dysreflexia and Autonomic Dysreflexia*. An information search and recovery program was used to locate records that contained such diagnoses.

For demographic and clinical data collection, a five-part method was used. The first part referred to demographic variables, including gender, age group, etiology, mechanism and year of injury. The second part identified the neurological level and extension of the injury according to the American Spinal Injury Association (ASIA). The third part considered data related to the number of autonomic dysreflexia events and the noxious stimuli triggering it and recorded the symptoms. The fourth part was related to nursing diagnoses of *Risk for Autonomic Dysreflexia and Autonomic Dysreflexia*, in addition to other associated diagnoses. The fifth part was related to nursing interventions to treat or prevent the studied nursing diagnoses.

After reviewing all of the medical records, the variables were coded and a database was developed. The data were transcribed to spreadsheets, and the database was validated through double entry of independent spreadsheets. The data were analyzed with the statistical program SPSS (Statistical Package for Social Science) version 16.0. We found 352 records containing events of nursing assistance aimed at preventing and treating autonomic dysreflexia. The data were analyzed by descriptive statistics.

RESULTS

From 465 studied medical records, we identified 271 patients with a nursing diagnosis of *Risk for Autonomic Dysreflexia*. We observed that 79% of patients were males and 21% were females. Regarding age, the patients were primarily young. The mean age was 35.7 years, and 69.4% were between 18 and 40 years of age. In 80.1% of the observed cases, spinal trauma was the major injury mechanism. With regard to the type of accident, urban violence was responsible for 65.9%, followed by diving in shallow waters (15.3%) and falling from high points (14.3%). With regard to non-traumatic injuries, infectious myelitis was the primary cause – 42.6% of cases. As to the neurological level, 170 (62.7%) individuals had cervical injury and 101 (37.3%) individuals had thoracic injury with a level equal to or above T6. We observed that 138 (37.3%) injuries were complete. From patients admitted in 2009, 218 (80.4%) were being admitted to the rehabilitation program for the first time, and 153 (56.5%) had the injury for less than one year (Table 1).

Table 1 - Patients with SCI and a nursing diagnosis of *Risk for autonomic dysreflexia*, according to clinical and demographic variables – Belo Horizonte, MG, 2009

Variables	Frequency	Percentage
Gender		
Male	214	79
Female	57	21
Age Group		
< 21 years	31	11.4
21 – 30 years	95	35.1
31 – 40 years	62	22.9
41 – 50 years	32	11.8
51 – 60 years	26	9.6
> 60 years	25	9.2
SCI Mechanism		
Traumatic	217	80.1
Non Traumatic	54	19.9
Neurological level		
C1 to C8	170	62.7
T1 to T6	101	37.3
ASIA*		
A	138	50.9
B	44	16.2
C	50	18.5
D	36	13.3
E	03	1.1
Hospitalizations		
First	218	80.4
More than one hospitalization	53	19.6
Time after injury		
Less than one year	153	56.5
More than one year	118	43.5

Source: research data

* ASIA – American Spinal Injury Association

Note: (n = 271)

Among patients with *Risk for Autonomic Dysreflexia*, 80 developed *Autonomic Dysreflexia*. In addition, there were changes in demographic and clinical variables. Mean age dropped to 30.5 years, and 82.5% were young adults between 18 and 40 years of age. As to gender, 90% were males and 10% were females.

Our study observed that the incidence of a nursing diagnosis of *Autonomic Dysreflexia* was 29.52%, with a predominance of traumatic injury patients (96.2%). With regard to neurological level, 58 patients (72.5%) had cervical injury, and in 52 (65%) patients, these were complete injuries. Autonomic dysreflexia was present in 47 patients (58.8%) less than one year after injury (Table 2).

As shown in Table 3, there have been 139 events (risk factors) preceding autonomic dysreflexia, with a mean of 1.72 per patient. The major stimulus was bladder distention, with 124 events, followed by pain (8); rectal distention (4); and infection, pressure ulcer and musculoskeletal conditions (1 event each).

Table 2 - Patients with SCI and a nursing diagnosis of Autonomic Dysreflexia, according to demographic and clinical variables – Belo Horizonte, MG, 2009

Variables	Frequência	Percentual
Gender		
Male	72	90.0
Female	08	10.0
Age Group		
< 21 years	10	12.5
21 – 30 years	38	47.5
31 – 40 years	18	22.5
41 – 50 years	08	10.0
51 – 60 years	05	6.3
> 60 years	01	1.2
SCI Mechanism		
Traumatic	77	96.2
Non Traumatic	03	3.8
Neurological Level		
C1 to C8	58	72.5
T1 to T6	22	27.5
ASIA		
A	52	65.0
B	18	22.5
C	10	12.5
D	00	00
E	00	00
Hospitalizations		
First	66	82.5
More than one hospitalization	14	17.5
Time after injury		
Less than one year	47	58.8
More than one year	33	41.2

Source: research data

* ASIA – American Spinal Injury Association

Note: (n = 80)

Table 3 – Risk factors for Autonomic Dysreflexia in patients with SCI – Belo Horizonte, MG, 2009

Variables	Frequency	Percentage (%)
Bladder distention	124	89.2
Pain	8	5.8
Rectal distention	4	2.9
Pressure ulcer	1	0.7
Urinary infection	1	0.7
Musculoskeletal conditions	1	0.7

Source: research data

Note: (n = 139)

The most prevalent signs and symptoms during autonomic dysreflexia were blood pressure increase, bradycardia, gooseflesh and headache (Table 4).

Table 4 – Signs and symptoms found in nursing records associated with Autonomic Dysreflexia in patients with SCI – Belo Horizonte, MG, 2009

Signs and Symptoms	Frequency	Percentage (%)
Hypertension	139	100
Bradycardia	72	51.8
Gooseflesh	40	28.8
Headache	30	21.6
Blush	24	17.3
Sweating	17	12.2
Sensation of anxiety	11	7.9
Tachycardia	4	2.9
Skin paleness	4	2.9
Nasal congestion	3	2.2
Cold extremities	1	0.7
Blurred vision	1	0.7

Source: research data

Note: (n = 139)

Nursing diagnoses of *Risk for Urinary Retention*, *Urinary Retention*, *Urinary Infection*, *Pressure Ulcer*, *Impaction*, *Obstipation*, *Risk for Obstipation and Pain* were related to autonomic dysreflexia. New nursing diagnoses/results were found, which are still not part of ICNP® Version 2.0. These terms include autonomic dysreflexia control, decreased risk for autonomic dysreflexia, no risk for autonomic dysreflexia and absent autonomic dysreflexia, in addition to new terms such as urinary infection, autonomic dysreflexia preventive measures and vesico-intestinal reeducation program, which were allocated to the ICNP® tree in the axes focus, action and means, respectively.

The interventions identified in the nursing records were classified into two groups: The first aimed at prevention and the other at treating autonomic dysreflexia, each one with eleven actions (Chart 1).

Chart 1 – Nursing interventions for the diagnoses of Risk for Autonomic Dysreflexia and Autonomic Dysreflexia – Belo Horizonte, MG, 2009

Risk for autonomic dysreflexia

Evaluate patient and family assistance in the care and management of AD preventive techniques.

Evaluate signs and symptoms of urinary infection.

Develop a skin care plan

Teach patient, caregiver and family members how to take care of the skin or skin injury.

Teach patient, caregiver and family members how to identify causes, signs and symptoms, and AD preventive and control measures.

Teach patient, caregiver and/or family members how to identify noxious stimuli able to trigger autonomic dysreflexia.

Start bladder and intestine reeducation program.

Monitor patient's urinary and intestinal elimination conditions

Promote actions to minimize noxious stimuli able to trigger AD.

Prevent obstipation.

Treat skin injury, if present.

Autonomic dysreflexia

Administer anti-hypertensive drugs according to the medical prescription.

Relieve skin pressure points.

Raise the head of the bed at a 45 to 90 degree angle, or make the patient sit up.

Manually extract the patient's stools

Identify AD-triggering stimuli.

Monitor AD signs and symptoms

Monitor patient's vital signs and physical status.

Perform bladder catheterization

Change patient's position

Remove stimuli causing dysreflexia.

Remove tight clothes or devices, or compression stocking.

Source: research data

DISCUSSION

There is a prevalence of males among nursing diagnoses of *Risk for Autonomic Dysreflexia* and *Autonomic Dysreflexia*. The mean age of patients with spinal cord injury, in addition to their increased survival rate of approximately 38 years after injury, make this population vulnerable to the consequences of aging. Thus, one should invest in the prevention and education of patients at risk for dysreflexia because, with aging, they become more susceptible to circulatory diseases⁽¹²⁻¹⁴⁾.

According to the literature, autonomic dysreflexia affects 50% to 70% of patients at risk. However, our study has shown a lower incidence, which may be explained by the understanding of the syndrome and its management by the nursing team because nursing records have revealed a further attention to prevention through the observation of nursing diagnoses associated with autonomic dysreflexia^(6,8).

The literature reports that some patients with spinal cord injury below T6 may develop autonomic dysreflexia. Our study, however, has shown a predominance of *Risk*

for *Autonomic Dysreflexia* and *Autonomic Dysreflexia* in patients with spinal cord injury above T6, and no patient with this level of injury had any diagnosis presented in this study. In addition, symptoms are more severe in patients with cervical, traumatic and complete spinal cord injuries. There is also a higher incidence of autonomic dysreflexia in traumatic and complete spinal cord injuries, which is related to the cervical neurological level⁽⁹⁾.

ICNP[®] is an informational tool to describe nursing practices. Its insertion in health information systems enables the identification of nursing contributions for health assistance. ICNP[®] is a classification system aimed at unifying existing taxonomies and classifications, enabling the international comparison of nursing data.

With ICNP[®], nurses document their professional practice. As a consequence, we have observed the presence of nursing diagnoses for *Risk for Autonomic Dysreflexia* and *Autonomic Dysreflexia*, as well as the identification of nursing actions to prevent and treat this spinal cord injury complication. In addition, it was possible to identify new terms used for nursing actions and results.

The primary autonomic dysreflexia triggering factor is known to be bladder distention. Thus, when admitting patients to the rehabilitation process, in the attempt to decrease this triggering factor, nurses immediately start the bladder reeducation program. A thorough evaluation is made to determine the bladder capacity, intravesical pressure and whether there is urinary infection or only bladder colonization. The objective of the evaluation is to initiate a therapy to obtain a bladder with low intravesical pressure, total urine drainage at regular intervals, and decreased risk for urinary infection. As such, nursing interventions are immediately started and aimed at identifying noxious stimuli that may trigger autonomic dysreflexia, promote actions to minimize noxious stimuli, monitor patient's urinary elimination, start a bladder reeducation program and evaluate urinary infection signs and symptoms⁽¹⁵⁾.

Intermittent bladder catheterization, a clean technique, is considered the gold standard for complete bladder drainage. In general, it is associated with anticholinergic medication to decrease intradetrusor pressure, increase bladder capacity and decrease losses. This method was evaluated with regard to urinary tract infections and urethral stenosis, but little has been written about the frequency of autonomic dysreflexia during such treatment. In our study, 382 patients were under intermittent catheterization at the end of hospitalization; of the 80 patients who developed autonomic dysreflexia, 77 began to use intermittent catheterization as a way to drain the bladder. This trend might be one reason for the low incidence of dysreflexia⁽¹⁵⁾.

Intestinal dysfunction in spinal cord injury patients is a major problem that imposes limitations to their daily and social lives and, as a consequence, to their quality

of life. Fears of intestinal accidents restrict patients from participating in outdoor activities. In addition, the second most common cause of autonomic dysreflexia is rectal distention due to fecal impaction, which accounts for 13% to 19% of cases. However, in our study, this was the third most common out of four events of autonomic dysreflexia. This result might be explained by the beginning of intestinal reeducation, which offers foreseeable and effective elimination, thus decreasing evacuation problems and gastrointestinal complaints and, as a consequence, autonomic dysreflexia. Thus, initiating an intestinal reeducation program and preventing obstipation is a necessary intervention to prevent autonomic dysreflexia^(6,16).

Due to decreased mobility and sensitivity, all spinal cord injury patients are at high risk for developing pressure ulcers, a primary cause of morbidity in these patients and a stimulus for autonomic dysreflexia. Thus, a skin care plan should be started for all spinal cord injury patients. Typically, when a patient presents with skin injury, the treatment is immediate; consequently, only one autonomic dysreflexia event has been caused by a pressure ulcer⁽¹⁷⁾.

Perhaps the most important aspect of autonomic dysreflexia management is its prevention. An education program during rehabilitation should be made available to patients, caregivers and family members that instructs in the care of the bladder, intestine and skin as well as management techniques, so that patients may benefit from health care. For this reason, teaching interventions are part of nursing records⁽¹⁸⁾.

Early identification of the stimuli triggering autonomic dysreflexia is essential for treatment. The absence of this knowledge may result in severe hypertension, leading to brain or subarachnoid hemorrhage, seizures, atrial fibrillation, neurogenic pulmonary edema, retinal hemorrhage, coma or death. According to the Spinal Injury Medicine Consortium, after confirming autonomic dysreflexia through increased blood pressure, with or without typical signs and symptoms, the first step is to position patients in the vertical position to benefit from any orthostatic blood pressure decrease by building up blood in the abdomen and lower limbs. At the same time, one should remove any tight clothes or devices. This enables further blood aggregation below the injury level, in addition to eliminating possible peripheral stimuli that may trigger autonomic dysreflexia. During treatment, blood pressure should be monitored every 2 or 5 minutes until it is stabilized. The next step is to try to eliminate the triggering stimulus of autonomic dysreflexia⁽¹⁹⁾.

It is known that 85% of autonomic dysreflexia events are caused by bladder and rectal distention. If the patient has an indwelling bladder probe, one should check the presence of bends or obstructions and, if necessary, clear it. If the patient uses intermittent catheterization, this should be performed to drain the bladder. In many cases, there is a relief of symptoms and hypertension. However,

if such approaches fail, one should evaluate intestinal distention and remove stools. If the systolic blood pressure is still high after the above-mentioned steps, other causes should be investigated. The objective of this intervention is to relieve the symptoms and prevent the complications associated with uncontrolled hypertension. Thus, all nursing interventions found in nursing records to treat autonomic dysreflexia follow these guidelines^(6-8,19).

Autonomic dysreflexia episodes in spinal cord injury patients may vary in severity. In some patients, it is asymptomatic and silent. In many cases, these episodes may be managed by patients and family members once they are familiarized with triggering stimuli. However, in some situations, it is difficult or virtually impossible to identify the cause of the acute blood pressure increase; in these cases, immediate medical attention is required. Although anti-hypertensive drugs are considered the last resort, they should be used. The best anti-hypertensive drugs for this situation are nitrates, especially nifedipine and captopril⁽¹⁷⁻¹⁸⁾.

Among nursing diagnoses associated with autonomic dysreflexia, the most common were *Risk for Urinary Retention* and *Urinary Retention* due to the bladder characteristics after spinal cord injury. Detrusor hyperreflexia is seen in approximately 70% of patients, followed by bladder sphincter dyssynergia in 50%. Clinically, most SCI patients have urinary retention with losses by bladder filling⁽²⁰⁻²¹⁾.

Autonomic dysreflexia is a comorbidity that will follow patients with spinal cord injury above T6 throughout their lives; thus, they will have to know how to control it. A rehabilitation nurse's concern should be to educate patients, supplying the necessary subsidies to minimize the risks. For this purpose, new nursing diagnostic/result terms were identified. These terms must still go through a validation process to contribute to the development of ICNP®, version 2.0^(10,18).

CONCLUSION

Using medical records, nursing diagnoses of *Risk for Autonomic Dysreflexia* and *Autonomic Dysreflexia* were observed, in addition to the identification of nursing interventions to prevent and treat autonomic dysreflexia. In our study, it was clear that removing the triggering stimulus was the most effective therapy and the best nursing strategy, with the identification and removal of noxious stimuli being the first treatment intervention.

To control autonomic dysreflexia in spinal cord injury patients, nurses perform emergency rehabilitation actions when the clinical and health conditions of the patient are still unstable or because the patient has not gone through any rehabilitation program.

The use of specific nursing practice terminology, in this case ICNP®, allowed us to observe the educational function of nurses in an attempt to qualify patient/

caregiver/family members in autonomic dysreflexia prevention and treatment.

Additionally, another major aspect of the study was the development of an intervention guide by rehabilitation

nurses, which favors its use in clinical practice information systems for support and decision making, enabling clinical trials that show the impact of nursing actions upon the management and non-pharmacological treatment of autonomic dysreflexia.

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