NEUROLOGICAL EVALUATION ABOUT NURSING KNOWLEDGE OF THE PATIENT WITH TRAUMATIC BRAIN INJURY

ABSTRACT
Objective: to assess the knowledge of nurses in emergency care on the neurological evaluation of the patient with traumatic brain injury. Method: a descriptive study with a quantitative approach, with 17 nurses. It asked the nurse to determine which neurological evaluation parameters were considered important and fill out a questionnaire and the Glasgow Coma Scale (GCS), identifying clinical variables and specific categories. We used simple frequencies and relative and Pearson's chi-squared tests and Fisher's exact test by SPSS version 20.0. Results: seventeen nurses took part in the sample formed an average time of three years. The assessment of the level of consciousness was considered the most important parameter. Ten (58.8%) identified clinical variables and specific categories of GCS. Seven (41.2%) were not able to identify the clinical, variables or specific categories. Conclusion: the nurses' knowledge of the neurological evaluation is bad. The team needs to improve neurological examination. Descritores: Neurologic Examination; Nurses; Glasgow Coma Scale.

RESUMO
Objetivo: avaliar o conhecimento de enfermeiros de um serviço de urgência sobre a avaliação neurológica do paciente com trauma cranioencefálico. Método: estudo descritivo, de abordagem quantitativa, com 17 enfermeiros. Solicitou-se que o enfermeiro determinasse quais parâmetros da avaliação neurológica eram considerados importantes e preenchesse um questionário e a Escala de coma de Glasgow (ECCI), identificando variáveis clínicas e categorias específicas. Utilizaram-se frequências simples e relativa e testes Qui-quadrado de Pearson e Exato de Fisher pelo Programa SPSS versão 20.0. Resultados: dezessete enfermeiros participaram da amostra com média de tempo de formado há três anos. A avaliação do nível de consciência foi considerada o parâmetro mais importante. Dez (58,8%) identificaram as variáveis clínicas e categorias específicas da ECCI. Sete (41,2%) não foram capazes de identificar as variáveis clínicas, nem as categorias específicas. Conclusão: o conhecimento dos enfermeiros sobre a avaliação neurológica é ruim. A equipe necessita melhorar o exame neurológico. Descritores: Exame Neurológico; Enfermeiros; Escala de Coma de Glasgow.

RESUMEN
Objetivo: evaluar el conocimiento de enfermeros de un servicio de emergencia en la evaluación neurológica del paciente con traumatismo craneoencefálico. Método: estudio descriptivo, de enfoque cuantitativo, con 17 enfermeros. Ha sido solicitado que el enfermero determinara los parámetros de evaluación neurológica que se consideraron importantes, a partir de un cuestionario y la escala de coma de Glasgow (ECCI), identificando las variables clínicas y categorías específicas. Se utilizaron frecuencias sencillas y relativas y testes de Pearson Chi-cuadrado y Exacto Fisher por el programa SPSS versión 20.0. Resultados: diecisiete enfermeros participaron en la muestra con un promedio de tiempo de 3 años ya formado. La evaluación del nivel de consciencia fue considerada el parámetro más importante. 10 (58.8%) identificaron las variables clínicas y categorías específicas de ECCI. 7 (41,2%) fueron incapaces de identificar las variables clínicas o categorías específicas. Conclusión: el conocimiento de los enfermeros acerca de la evaluación neurológica es malo. El equipo necesita mejorar el examen neurológico. Descriptores: Examen Neurológico; Enfermeros; Escala de Coma de Glasgow.

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INTRODUCTION

The evaluation of patients with Traumatic Brain Injury (TBI) often requires diagnosis and advanced treatment and often requires the transfer to specialized centers. In these centers, the initial approach, clinical history, general physical examination and neurological examination provide the health team with basic information that contributes to the risk stratification of a patient having or developing neurosurgical injury.1

The initial care to trauma victims should always follow the guidelines recommended by Support Advanced Trauma Life (ATLS), ensuring the patency of the airway, the integrity of the respiratory and cardiovascular systems prior to starting the neurological assessment.1 Developments after TBI are closely related to early identification of high-risk patients. The delay in diagnosis or treatment can worsen results.2-4

Neurological examination in the emergency department, is the main tool to assess patients with TBI, however, the reliability assessment requires the application accurately.1 The survey is the observation of some parameters: the level of awareness, response and pupillary diameter, presence of brain stem reflexes and motor function.4,1 During the first 48 hours, the patient’s progress should be monitored and recorded systematically and objectively.3

The evaluation of the response and pupillary diameter is a feature that lets you determine the severity or improvement of patients with TBI. It is a simple technique, requiring only the presence of additional light.5 The trader must be aware of the size, symmetry and reactivity of light. In case of abnormality, neurosurgeons should be reported to immediately.1

The observation of brain stem reflexes provides important information. If the reflexes are absent it means a bad prognostic.5 Evaluation of motor function to both sides of the body identifies the presence or absence of lateralization. To assess motor response we must use the Glasgow Coma Scale (GCS).5

The level of awareness is one of the important aspects that should be valued in the evaluation of the victim of TBI since it determines changes in the state of brain function. Treatment decisions depend on an accurate assessment of the state of conscience.1

The GCS sets the level of consciousness by observing the behavior is based on a numerical value. It is the scoring system most widely used internationally for evaluation of comatose in intensive care patients. It was developed to standardize the assessment of clinical outcomes in critically ill patients and communication between health team members.7-8

Evaluates the reactivity of the patient by observing three parameters: eye opening; motor response and verbal response. Each of the three parameters component receives a score ranging from 3 (three) to 15 being the best score and 15 the lowest (three).9 Patients with a score of 15 has normal level of consciousness. Patients with lower scores than eight are considered in a coma, an extreme state of urgency.7 It is important to identify in a timely manner patients with reversible causes and potential for a favorable result.5 The score three (3) is compatible with brain death, however, for confirmation of brain death there is no need to evaluate other parameters.4

Besides the evaluation of neurological parameters, other systems should be monitored for early recognition and treatment of problems and complications. Brain damage can cause unstable vital signs. During the first 48 hours the nursing staff should be alert to the vital control signals.3,10

Neurological examination is a feature that allows the healthcare team to determine the severity or improvement of neurological patients. It is known that nurses are performing their duties in emergency units, but as performing neurological assessment? What is considered important in evaluating patients with TBI? Do Nurses know the GCS? This study aims to assess the knowledge of nurses in emergency care on the neurological evaluation of the patient with traumatic brain injury.

METHOD

A descriptive, prospective study with a quantitative approach. The sample consisted of 17 clinical nurses in trauma crowded sector of an emergency hospital in the state of Sergipe, distributed in morning shifts, afternoon and night shift. Data collection was conducted from March to August 2011. We used a data collection instrument applied in the form of a questionnaire with open and closed questions, encompassing variables for characterizing the sample as age, sex, time graduation, length of service in the industry and training.

To determine the level of knowledge of nurses on the neurological evaluation of the
patient with TBI, the form contained questions about the neurological assessment of parameters such as, where he learned, in which patients used and the frequency that performed the evaluation. It also asked that the nurse determines which parameters the neurological evaluation of patients with mild and severe TBI were considered important.

Given that the observation of the level of consciousness and motor function are performed using the GCS (Fig. 1), we asked that the nurse properly fill the GCS to identify clinical variables and the categories of each variable scale. The appropriate score for each category already appeared in the form (Fig. 2).

The project was approved by the Ethics Committee of the Federal University of Sergipe with CAAE identification number - 4222.0.00.107-10. Participants agreed to participate in the study and signed the Informed Consent Form by ensuring the ethical aspects of Resolution No. 466/2012 of the National Council of Health, Ministry of Health.

For statistical analysis, we used simple frequencies and relative and chi-squared tests and Fisher’s exact test, with the help of SPSS version 20.0.

### RESULTS

Seventeen nurses answered the questionnaire, 14 (82.4%) females and three (17.6%) were male. The age ranged from 24 to 38 years (average 29.7 years). The time of training of nurses ranged from less than one year to more than ten years (average 3.06 years). The service ranged in less than one year to nine years (average 1.9 years). 13 (76.5%) had no training in ATLS, 3 (17.5%) were and 1 (5.9%) had the course in progress. 13 (76.5%) learned to perform neurological assessment during the undergraduate course.

As for the evaluation parameters of the patients with mild TBI, 16 (94.1%) considered the most important evaluation of the level of consciousness. Ten (58.8%), motor functions; seven (41.2%), observation of pupils and evaluation of reflexes.
The most important parameters for serious patients were 15 (88.2%) level of consciousness; 13 (76.5%) answered pupils and reflexes and nine (52.9%) motor function as the most important parameter.

When asked what scale they use to carry out the assessment of the level of consciousness, all 17 (100%) who perform the evaluation stated using the GCS, however, when asked to perform the filling of the GCS, ten (58.8%) identified the variables clinics and specific categories of GCS. Seven (41.2%) were not able to identify the clinical variables, or specific categories of each variable.

Among the ten nurses who identified clinical variables or categories of the scale, there was the difficulty of filling in each clinical variable for the category represented in Table 1. The component eye opening was the one with the highest number of hits.

Tabela 1. Proportion of correct answers in the identification of the categories of GCS.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Percentual of correct answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Opening</td>
<td>7</td>
<td>70%</td>
</tr>
<tr>
<td>Verbal Response</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>Motor Response</td>
<td>5</td>
<td>50%</td>
</tr>
</tbody>
</table>

The average score on the variable eye opening was three to four possible correct answers, four for verbal response of five possible four to six possible in the variable motor function.

There was no association between the scale of the filling accuracy and ATLS training (p = 0.28).

**DISCUSSION**

The scientific literature points to the importance of documenting and monitoring results of changes in TBI. These findings contribute to the early detection of changes and establishes rapid interventions, aiming mainly at preventing side effects.10

Neurological examination, when conducted thoroughly, provides important information on the victim approach, however, requires knowledge and specific preparation. The nursing staff should be able to assess the victim of TBI with skill, precision and safety.1

The characterization of the sample nurses found young nurses with training time on average three years, two years of service, with predominantly female; nursing is predominantly female.12

As for the important parameters of the assessment of TBI victims, a large proportion of the sample considers the assessment of the level of consciousness. Less frequently appear observation of pupils and evaluation of reflexes. For severe TBI victims, the observation of motor function was considered the least important standard.

A recent study showed that pupillary reactivity with the motor component of the GCS performed better in predicting the death of victims with TBI. The GCS motor component is a powerful predictor of mortality.14 Another study found that the most important parameters to determine the degree of encephal disorders and motor response were reflections of the brainstem. During the first 24 hours, observation was reflections of the factor with the ability for better prognostic.15

Although some nurses are intimidating should they consider this evaluation should not be considered hard.10

Despite considering the level of consciousness the most important parameter to be observed in patients with TBI, assess the level of consciousness cannot be considered a complete neurological evaluation. The other parameters are important and should be valued.1 The lack of basic knowledge of anatomical and physiological components of the level of awareness contributes to the neurological assessment to be badly interpreted.8

All nurses who perform the neurological examination said they use GCS, however, only slightly more than half filled properly, some were not able to identify the clinical variables or specific categories of the scale. A similar study showed that only 15% of the sample was able to correctly remember all variables and categories of GCS.9

This echoes another study16: the investigation found that the GCS was used with precision by experienced and highly skilled users, but novice users committed consistent errors.

A predominance of nurses was found in this study, who lacked training in ATLS, however even those without ATLS training properly filled out the scale diverging from another finding. It was observed, in a hospital with 87% of professionals trained in ATLS, those who lacked the training were not able to fill the scale.9
Other research comparing the interaction of the GCS scores among various specialists involved in the emergency department, registering major differences with regard to parity of GCS. Scores Training and continuous scale use is recommended to ensure reliability and expected accuracy. Regarding the identification of correct clinical variables or categories of the scale, in absolute numbers, the component eye opening was the one with the highest number of hits. The average score of this study showed results similar to those recorded in literature.

Additional instructions on specific factors can help inexperienced teams to improve the reliability of GCS.

CONCLUSION

Nurses in this sample performs neurological assessment of TBI, but knowledge of the evaluation is bad. Consider the evaluation of the level of consciousness the most important parameter for observing TBI victims. While performing a neurological assessment, some do not know the categories of GCS. We conclude that the team needs strategies to improve the assessment of the neurological status of the patient with TBI.

REFERENCES


Neurological evaluation about nursing...


