Contents lists available at BioMedSciDirect Publications

International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com

Original Article

The Use of a Proforma Improves the Assessment of Spinal Cord Injury in Abuja, Nigeria

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ARTICLE INFO

ABSTRACT

Objective: To determine how the use of a proforma affects the completeness of assessment of spinal cord injured patients at the casualty of the University of Abuja Teaching Hospital Gwagwalada, Abuja. Background: Spinal cord injury (SCI) is a well documented problem. Assessment protocol of SCI has not been fully established in the casualty of most major trauma centre in Nigeria and where it is used there has not been any report of its efficacy in the literature. Our hypothesis is that proforma based assessment protocol use would improve the assessment of patients with spinal cord injury. Methods: Data on all spinal cord injured patients were prospectively documented over a 12 month period of 2009. The University of Abuja Teaching Hospital (UATH) Gwagwalada spine assessment proforma lists all items considered to be essential for a complete assessment of spinal cord injured patients in the casualty. This was then compared to the data obtained from patients admitted for spinal cord injury from 1997 to 2007 before the introduction of the proforma in December 2008. Results: Preproforma, 202 patients were assessed and 196 (97%) had one or more items missing from their reports compared to only 10/86 (11.6%) patients postproforma (p=0.001). Prehospital care, mechanism of injury, extrication, evacuation, fracture pattern, bulbocavernous reflex and standardized neurologic assessment were the items most often absent, being significantly more frequently reported after the proforma . Conclusion: Proforma based assessment protocol would help in accurate data collection and provide adequate data for informed, objective and standardized management of spinal cord injured patients.

1. Introduction

Spinal trauma in Nigeria is an age long problem [1-9]. In all the reviews, the outcome of treatment of spinal cord injured patients shows wide variation[1,6-11]. This suggests that there may be scope for improving the results of treatment using existing therapeutic regimens [10]. Accurate assessment at presentation plays a major part in the management of patients with spinal cord injury. Unfortunately evidence from several audits suggests that the overall standard of data reporting is poor, with many reports

failing to contain important data [10-12]. UATH Gwagwalada spinal cord injury assessment proforma was developed as a structured template containing all essential data to assess all spinal cord injured patients. This was done to eliminate missing important data. It was noted that majority of trauma centre do not employ proforma based protocol to obtain standardized data for patients' care and those that do have not reported on its use.

Our hypothesis is that proforma based assessment protocol use would improve the assessment of patients with spinal cord injury. This study is an evaluation of proforma for assessment protocol of patients with spinal cord injury in the casualty of UATH Gwagwalada Abuja.

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2. Materials and Methods

A standardized proforma was designed to assist in collection of data that emphasized mechanism of injury, prehospital care and patients' assessment in accordance with America Spinal Injury Association guidelines [13]. This also contain the treatment protocol for the first 48hrs following spinal cord injury.

The first version of the proforma was piloted over a 6 week period and reassessed. There was 43% compliance with version 1 of the proforma. Feedback was obtained from the colleagues using the forms and the proforma was redesigned to include treatment plan for patients for the first 48hrs of admission and casualty officers were taught on its use. Version 2 of the proforma was then implemented to assess spinal cord injured patients seen. Records of spinal cord injured patients were then collected prospectively from consecutive patients admitted in the University of Abuja Teaching Hospital Gwagwalada, Nigeria from 1st January 2009 to 31st December 2009. The data were analyzed and essential information necessary for management was identified. A re-audit of data was then undertaken using the revised standardized proforma. The gold standard for audit was 100% data transmission as suggested by Bhabra et al [14], and 88.4% compliance noted with the new standardized proforma. Each item of data was classified as either present or missing. Statistical comparisons of individual types of data before and after the introduction of the proforma were performed using Fisher's exact test.

The Mann-Whitney U test was used to compare the total amount of data recorded for each patient before and after the introduction of the proforma. The calculations were performed using SPSS version 17 (SPSS Inc. Chicago, Illinois, USA); a p-value of <0.05 is significant.

3. Results

Table 1: Documentation of each assessment item for spinal cord injured patient both before and after introduction of proforma

Documentation absent	Preproforma (n=202)	Postproforma (n=86)	p-value*
Mechanism of injury	186 (92.1%)	3 (3.5%)	0.003
Prehospital care	137 (67.8%)	4 (4.7%)	0.007
Extrication	192 (95.0%)	2 (2.4%)	0.001
Evacuation	186 (92.1%)	3 (3.5%)	0.009
Fracture characteristic	178 (88.1%)	10 (11.6%)	0.012
Neurologic assessment	202 (100%)	6 (7.0%)	0.000
(ASIA chart)			
Bulbocavernous reflex	198 (98%)	8 (9.4%)	0.002
Overall number of deficit reports	187 (92.6%)	10 (11.6%)	0.023
* Mann-Whitney U test			

There were 86 patients with spinal cord injury recruited into the postproforma cohort group from 1st January 2009 to 31st December 2009. The preproforma group were 202 patients admitted from 1st January 1997 to 31st December 2007.

Documentation of each individual assessment items both pre- and postproforma are listed in Table 1.

The completeness of the overall report for each patient was better after the introduction of the proforma and this was statistically significant. With regard to individual items, significant differences were seen in all the listed items.

4. Discussion

None of the report [1-9] reviewed use proforma based protocol to assess spinal cord injured patients. This study showed improvement in assessment of spinal cord injured patients as a result of introduction of a proforma; 92.7% of patients had one or more items absent from their assessment compared to 11.6% after the use of proforma. This corroborated the findings noted by Rigby et al [10]. The improvement in assessment noted was in the prehospital care, mechanism of injury, extrication, evacuation, characteristic of fracture, neurologic assessment, bulbocavernous reflex and clinical state of the patients.

Prehospital care was not documented in 67.8% of preproforma reports. This factor has been documented for all patients with significant spinal injury [15]. Its poor reporting has also been noted in previous studies [2,4,15]. Rigby et al [10] noted a 5-fold decrease in the number of inadequate report in one of their major items focused on. In this study our finding was similar with prehospital care reporting.

The other prognostic indicators that were poorly reported before the introduction of proforma were mechanism of injury and types of fracture. These were only specifically stated in 47% and 32 % cases respectively. The failure to adequately report these prognostic factors have implication in patient management and outcome study. This study showed that neurologic assessment was arbitrarily allocated and that 100% of the patients did not have a standardized method of assessing the neurologic deficit which made objective follow-up difficult. In the postproforma period all neurologic assessment was conducted with America Spine Injury Association [13] (ASIA) chart.

However, the study noted a small number of absent details in the postproforma period. These may be due to few of the medical officers' unfamiliarity with the proforma and the pressure of having a few hands in our casualty who are most often overwhelmed by work load. This may change with continued proforma use and re-evaluation.

5. Conclusion

The documentation on the problems of SCI in Nigeria is growing; effective proforma for history taking, physical examination to establish an immediate treatment plan still lags behind. Proforma based management protocol would ensure accurate data collection which would help to provide standardized management for all spinal cord injured patients and this tested the hypothesis for this study.

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