

Incidence of Loss of Consciousness in Critically Ill Patients Referred to Anesthesiologist in Emergency Department

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Abstract: -

➤ *Background :*

The high incidence of decreased awareness of entering an emergency room often associated with anesthetic involvement in emergencies can be saved in critically ill or injured patients.

➤ *Methods :*

This study is a prospective, observational cohort study was conducted at the emergency department (ED) of Haji Adam Malik General Hospital. We included all consecutive patients admitted to the ED during the period between February 15th until March 16th 2019.

➤ *Result :*

A total of 422 patients needed 19 airway management (4.5%) and 45 cases (10.7%) needed ICU admission. Loss consciousness patients had 130 cases (30.8%) of total emergency patient visits referred to the anesthesiology department. Overall, emergency cases in this study found 234 non-surgical emergency cases (55.5%) and 188 cases of emergency surgery (44.5%). From 130 patients with the most loss consciousness were cases of emergency surgery 71 cases (37.8%). Patients with loss of consciousness are risk factors for ICU admission, airway management, pain management, installation of CVC with p values (0.001) <0.05.

➤ *Conclusions :*

The incidence of loss of consciousness was 30.8% (130), and patients with loss of consciousness are risk factors for ICU admission, airway management, pain management, installation of CVC.

Keyword:- Unconsciousness; Critical Illness; Emergency Department.

I. INTRODUCTION

Patients with loss of consciousness are brought to the hospital reported amounting to more than 6% of all emergency room admissions. Loss of consciousness is not always immediate, this condition can be showed by a lucid period of several minutes may intervene between injury and onset of neurological deterioration [1]

Consciousness is intimately related to higher functions such as perception, attention, working memory, declarative memory, cognition, mental imagery, motivation, emotion, and language [2] According to Soteriades et al. (2002) who evaluated 7814 study participants showed that 822 patients reported syncope who participated in the Framingham Heart Study from 1971 to 1998. The incidence of first report of syncope was 6.2 per 1000 person-years. The most frequently identified causes were vasovagal (21.2 percent), cardiac (9.5 percent), and orthostatic (9.4 percent); for 36.6 percent the cause was unknown [1]

The high incidence of decreased awareness of entering an emergency room often associated with anesthetic involvement in emergencies can be saved in critically ill or injured patients. However, it can also increase mortality if it is not done properly. Conditions such as severe acute respiratory insufficiency benefit from emergency anesthesia and ventilation support. anywhere, the event benefits patients more than noninvasive ventilation support with a mask or a continuous positive airway air helmet. In addition, patients with traumatic brain injury with the Glasgow Coma Scale (GCS) score 9 can benefit from prehospital emergency anesthesia and can help with respiratory failure can be done through the definitive airway with intubation, this is used from the emergency team [3]

II. METHODS

A. *Patient Population and Characteristics.*

A prospective, observational cohort study was conducted at the emergency department (ED) of Haji Adam Malik General Hospital, located in Medan City. We included all consecutive patients admitted to the ED during the period between February 15th until March 16th 2019. This study was approved by the institutional review board, and the need for informed consent was waived. Demographic data were collected using a paper form following information was collected age, gender, type of emergency, and installation of double lumen and CVC.

B. *Level of consciousness assessment, admission ICU, intubation criteria, and pain assessment*

Clinical data were collected using a paper form following information was collected: age, gender, ICU admission, level of consciousness glasgow coma scale (GCS), management airway. We calculated The APACHE II score is calculated at the beginning of the ICU admission to

help determine the patient's mortality risk for the admission, and We measured the presence and severity of pain with the Numerical Rating for Pain Scale (NRP) or Behavioral Pain Scale (BPS), depending on the use of mechanical ventilation [4]. And for intubation criteria, affirmative answer to any of the following questions identifies the need for intubation in nearly all emergency scenarios, consisting of that are: Is patency or protection of the airway at risk?; Is oxygenation or ventilation failing?; Is a need for intubation anticipated (ie, what is the expected clinical course)? [5].

C. Statistical analysis

Statistical analyses were performed using the Statistical Package for Social Sciences program (SPSS version 25.0). Kolmogorov–Smirnov test was used to evaluate the distribution of variables. Numeric variables are reported as the mean±SD. Nominal variables are presented as percentages. Differences between groups were assessed using the Chi-square test, Fisher's exact test, Student's *t*-test, or Mann–Whitney *U* test, as appropriate. Univariate and multivariate logistic regression analyses were used to identify factors associated with loss of consciousness.

III. RESULTS

During the period of study data collection, 510 patients were hospitalized in the ER, and 80 patients were excluded from this study because of missing medical record data. 422 patient were included in this study. The mean age was 41.65±19.5 years old, and 244 (57.8%) were male.

Characteristics	Loss of consciousness		Total	Value P
	Yes	No		
Number of patients (%)	130 (30.8)	292 (69.2)	422 (100)	
Age, mean (SD)	41.65±19.5			0,058
Gender, n (%)				
Male	87 (35.7)	157 (64.3)	244 (57.8)	0,014
Female	43 (24.4)	135 (75.6)	178 (42,2)	
Management airway, n (%)				
Yes	15 (78,9)	4 (21,1)	19 (4.5)	0,001
No	115 (29.8)	288 (71.4)	403 (95.5)	
ICU Admission, n (%)				
Yes	36 (80.0)	9 (20.0)	45 (10.7)	0,001
No	94 (24.9)	283 (75.1)	377 (89.3)	
Awareness Level (GCS), n (%)				
Compos mentis	-	292	292 (69.2)	0,001
Apatis	24	-	24 (5.7)	
Somnolen	27	-	27 (6.4)	
Delirium	68	-	68 (16.1)	
Sopor	9	-	9 (2.1)	
Comma	2	-	2 (0.5)	
Management pain				
Yes	1 (1.4)	72 (98.6)	73 (17.3)	0,001
No	129 (37.0)	220 (63.0)	349 (82.7)	
Installation of CVC				
Yes	15 (30.0)	35 (70.0)	50 (11.8)	0,895
No	115 (30.9)	257 (69.1)	372 (88.2)	
Emergency case				
Emergency non surgery	59 (25.2)	175 (74.8)	234 (55.5)	0,006
Emergency surgery	71 (37.8)	117 (62.2)	188 (44.5)	
Total	130 (30.8)	292 (69.2)	422 (100)	

Table 1. Demographic and clinical data of patients

ICU: intensive care unit; CVC (Central Venous Catheter); Glasgow Coma Scale/Score (GCS)

A total of 422 patients needed 19 airway management (4.5%) and 45 cases (10.7%) needed ICU admission. Loss consciousness patients had 130 cases (30.8%) of total emergency patient visits referred to the anesthesiology department. cases requiring management pain were 73 cases (17.3%) with the highest number being patients with no loss of consciousness 72 cases (98.6%). From a total of 422 cases reported requiring the installation of CVC as many as 50 cases (11.8%) with 15 cases (30.0%) patients loss of consciousness. overall, emergency cases in this study found 234 non-surgical emergency cases (55.5%) and 188 cases of emergency surgery (44.5%). From 130 patients with the most loss consciousness were cases of emergency surgery 71 cases (37.8%). Demographic characteristics of the patients based on the presence of delirium are present in Table 1.

	Loss of consciousness (%)	p value
ICU admission	36 (80.0)	0.001 *
Management airway/intubated	15 (78,9)	0.001 *
Management pain	1 (1.4)	0.001 *
Installation of CVC	15 (30.0)	0.001 +

Table 2 Risk Factors for Loss of consciousness

ICU: intensive care unit; CVC (Central Venous Catheter); *Mann-Whitney U, + Chi-Square Tests

The incidence of loss of consciousness was 30.8% (130), and patients with loss of consciousness are risk factors for ICU admission, airway management, pain management, installation of CVC with p values (0.001) <0.05.

After reviewing the potential risk factors and clinical characteristics under investigation in the current study, we found several significant differences between patients with loss of consciousness; more specifically, patients with loss of consciousness were found to needed ICU admission, airway management, management pain, and installation of CVC. Patient of loss consciousness is more than to be older and male sex.

IV. DISCUSSION

Consciousness is a multifaceted concept that can be divided into two major components: the level of consciousness and the content of consciousness [2]. Arousal is maintained by a diffuse system of upper brainstem and thalamic neurons (called the reticular activating system) and its connections to the cerebral hemispheres. Patients who have had an episode of altered awareness and are subsequently brought to the hospital for evaluation are common [6]. Patients in the study tended to be slightly older and at most male. The results of this study are different from the Grudzen et. al. (2012) that patients who enter the most emergency departments are female and tend to be older. Cases of loss of consciousness in this study were quite high up to (30.8%). Patients in the study need airway management or intubation around 78.9. The results of this study are different from Grudzen et. al. (2012) that cases of intubation were around 11% with cases of smaller intubation. In addition, according to management pain needs in this study, including low referrals of around 17.3% compared to the research of Grudzen et. al. (2012) with a percentage of 53% [7].

According to Lorenzo et. al. (2016) who reported from the number of cases of emergency rooms around 669 cases, had an age average that was almost the same from this study 40.2 ± 17.3 years with a more dominant case of emergency surgical (Lorenzo et al., 2016). The results of this study indicate that there is a relationship between ICU admission and loss of consciousness. The results of this study are in accordance with Al-Qahtani (2017) that of the 940 patients who entered the emergency department around 25% in the

first 6 hours. Whereas in this study of 422 patients obtained 10.7% needed ICU care and from those who needed ICU care 80% experienced loss of consciousness.

V. CONCLUSIONS

The incidence of loss of consciousness was 30.8% (130), and patients with loss of consciousness are risk factors for ICU admission, airway management, pain management, installation of CVC.

VI. CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest or financial disclosure.

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