

The Response Time of Trauma and Non Trauma Patients Handling in Emergency Room Surabaya

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ABSTRACT

Background: Emergency room is one of the unit services in hospitals that provide first services in patients with threat of disability or even death. Emergency room is a service unit in a hospital with 24 service hours for 7 days in a week. The high risk and working hours in the emergency room requires the medical personnel that have good response times in the triage room. To compare response time of medical personnel when handling trauma and non-trauma patients in the emergency room.

Methods: A non-experimental, quantitative research method using analytic observational. The population of this study was a patient in the emergency room of Soetomo hospital Surabaya. The amount of the sample was 244 which was divided into 41 trauma cases and 203 non trauma cases.

Results: Response time of patients with trauma injuries that include quick category (< 5 minutes) amounted to 35 patients and 6 patients in slow category (> 5 minutes) with average response times of trauma patients was 6.244 minutes. Response time of patients with non-trauma injuries that include the quick category (< 5 minutes) amounted to 161 patients and 42 patients in the slow category (>5 minutes) with average response times of non-trauma patients was 3.722 minutes. The p-value response times of medical personnel in dealing with trauma and non-trauma patients is 0.374 (> 0.05) which means there was no difference in response times from medical personnel in handling trauma and non-trauma patients.

Conclusion: There was no difference in the response time of medical personnel in trauma and non-traumatic patients handling ($p > 0,05$). Overall, it was found that the average emergency room's response time at Soetomo hospital was 4.15 minutes, still meeting the applicable standards.

Introduction

The Emergency Room is one of the service units in the hospital that provides first services to patients with threats of disability and even death. Based on data from the Directorate General of Medical Services at the Ministry of Health, in 2007 the number of hospitals in Indonesia were 1,033 with a yearly number of visits as many as 33,094,000, while visits to the emergency room in one year were 4,402,205 (13.3% of the total visits at the hospital).¹

Emergency room is a hospital service unit with 24 hours service time for 7 days a week. The high risk and emergency working hours require medical personnel to have an accurate and fast response time. The response time is calculated from the time the patient arrives at the emergency room gate until is served by medical personnel with a maximum time limit of <5 minutes.²

In emergency services, there are still many cases that are not handled quickly and precisely, both at the location of the incident and in the hospital. The management of emergency patients still found delays in services because of the hospital administrative and financial reasons. Emergency patients often have to wait for the administrative process was finished before getting service.³

The most cases that often occur in the emergency room are trauma and non-trauma. Trauma as defined by the American Heritage Dictionary is an injury, particularly that caused by a sudden physical injury. Traumatic injury cases, for example motor vehicle accidents, burn, drowning, etc. While non-traumatic injuries such as failure of the central nervous system, cardiovascular, respiratory, and hypoglycemia that can cause death in a short time between 4-6

minutes, takes a relatively faster time to prevent biological death if the brain is deprived of oxygen within 8 -10 minutes as in the case of total airway obstruction and cardiac arrest.⁴

Basically, both traumatic and non-traumatic injuries require the same response time. Unlike triage system, which is a process of classifying patients based on the type and level of severity of their condition.⁵

The standard response time certainly affects the patient's condition, the response time can also be used as an evaluation of the hospital's performance in carrying out emergency services. Therefore, it is important to know the response time of the Soetomo Hospital's Emergency Room in treating patients with traumatic and non-traumatic wounds.

Methods

This research design was observational with retrospective study conducted in Dr. Soetomo hospital Surabaya. The number of ethical clearance was 565/Panke.KKE/IX/2017. This study used a comparative study to examine differences in response time for medical personnel in treating trauma and non-trauma patients in Soetomo Hospital's Emergency Room. The sample in this study were all patients who came to the Soetomo Hospital's Emergency Room which were recorded when the patient arrived and received treatment in the medical record. Data were taken from Emergency Room's medical records, with a purposive sampling technique from 10-15th October 2017. Traumatic injuries are injuries that cause a loss of continuity tissue, causing physical injury to the patient. Non-traumatic wounds are

injuries that do not cause loss of tissue continuity, so these injuries cause the patient to be physically fine. Most cases in IRD, non-traumatic injuries are cases of it involving vital signs such as heart failure and respiratory failure. Fast response time if ≤ 5 minutes measured from when the patient arrives at the IRD until he gets action from medical personnel. Slow response time if > 5 minutes measured from when the patient arrives at the IRD until he gets action from medical personnel. The data was analyzed with a comparative statistical test between 2 variables in 2 independent sample groups (Chi-square test).

RESULTS

This study collected 244 samples with the following description

3.1 Demographic Sample

Tabel 1. Age Distribution

Age	(n)	(%)
0 - 5 year	39	16
5 -11 year	16	6,6
12-25 year	44	18
26-45 year	51	20,9
46-65 year	75	30,7
> 65 year	19	7,8
Total	244	100

It was found that the largest number of age groups was the elderly (46-65 years) were 75 patients (30.7%). Then followed by the adult age group (26-45 years) were 51 patients (20.9%). Then, in the adolescent age group (15-25 years) were 44 patients (18%). In the toddler age group (0-5 years) were 39 patients (16%). Followed by the elderly age group (> 65 years) were 19 patients

(7.8%). The age group with the least number was in the children age group (5-11 years) which were 16 patients (6.6%).

Tabel 2. Sex Distribution

Sex	(n)	(%)
Male	127	52
Female	117	48
Total	244	100

It was found that the number of male patients was 52% with a total of 127 patients. Meanwhile, the number of female patients was 48% with 117 patients. Characteristic of Response Time on Trauma dan Non Trauma Patients

Tabel 3. Type of Patient

Triage Color Code	(n)	(%)
Trauma	41	16,8
Non Trauma	203	83,2
Total	244	100

It was found that the number of non-traumatic patients was greater (83.2%) with a total of 203 patients. While the number of trauma patients was 16.8% with a total of 41 patients.

The number of patients based on the response time of medical personnel were divided into 2 categories: fast (≤ 5 minutes) and slow (> 5 minutes) can be presented in the following table.

Tabel 4. Sampel Distribution based on Response

Variabel	(n)	(%)
Fast	196	80,3
Slow	48	19,7
Total	244	100

Based on the number of patients included in the medical personnel response time category, it can be seen that most of the patients were included in the fast category (80.3%) of 196 patients, while others were included in the slow category (19.7%) of 48 patients.

Table 5. Distribution of Response Time on Trauma dan Non Trauma Patients

Triage Color	Response Time		Mean of Response Time
	Fast	Slow	
Trauma	35	6	6,244 minute
<u>Non Trauma</u>	161	42	3,722 minute
Total	196	48	4,15 minute

Based on the table above, it can be seen that patients with trauma categories including fast response time are 35 patients and 6 patients are slow with an average response time of medical personnel of 6.244 minutes. There were 161 patients with non-trauma category including fast response time and 42 patients late with an average response time of medical personnel of 3,722 minutes.

The results of the comparative test using the Chi-square test obtained a p- value of 0.374 (>0.05). This indicates that there are no significant differences between the response time of medical personnel in trauma and non-trauma patients handling.

Discussion

This research was conducted at Soetomo hospital's emergency room on 10-15th October 2017 by taking data from medical records. Researchers took

the purposive sampling technique by setting certain criteria. The data included gender, age, triage color code, time when the patient arrived and the time when patient left the emergency room, the patient's disease diagnosis, and the category of patients with traumatic or non-traumatic wounds. Response time is the time between the patient's arrival and the patient's early treatment.^{6,7,8}

This study found that the largest number of patients who visited the emergency room were 75 (30.7%) patients with the elderly age group (46-65 years). There were more males (52%) than females (48%). Similar to Takaendengan (2016), there were 33,05% patients with 45-64 years old at Prof. Dr. R. D. Kandou hospitas's emergency room.⁹

There were 2 types of wounds, traumatic and non-traumatic wounds. From the results of this study, it was found that the number of non-traumatic patients were 83,2%. It was greater than traumatic patients. Almost same with Dahliana (2015) at Yogyakarta, it was 53,3% of non-traumatic patient.^{10,11}

According to Kepmenkes RI (2008) regarding the minimum standard of hospital services, the response time should be 5 minutes. Therefore, in this study, the response time is categorized as fast if 5 minutes, and if it is said to be slow if it is > 5 minutes.^{2,12}

It was found that the overall fast response time in the Soetomo hospital's emergency room was about 196 (80.3%) of the total 244 sample visits obtained. With an average response time of 4.15 minutes or 4 minutes 15 seconds. The Fahilah's study (2015) at Dr. M. Djamil Hospital Padang had an average response time of 6.15 minutes or 6 minutes 15 seconds.¹³

In the most emergency room including Soetomo hospital's emergency room, trauma cases are divided into 3 main categories based on their causes, there are traffic accident, work accident and household accidents.¹⁴ Trauma is a wound or injury, both physical and psychological, caused by physical action by breaking the normal continuity of a structure.¹⁵ Trauma, in other words, is called injury or wound, which can be interpreted as damage or injury due to hard contact with something so that a tissue is opened in the human body.¹⁶

The response time itself was faster for non-traumatic wounds with a mean of 3.722 minutes or about 3 minutes 43 seconds. In trauma wounds, the response time averaged 6.244 minutes or about 6 minutes 15 seconds. The p-value of the chi-square comparison test was 0.374 ($p > 0.05$). This shows that there is no difference in response time for medical personnel in trauma and non-traumatic patients handling.

Traumatic patients may have a longer response time (6.244 minutes) because in severe cases they need to wait for the approval by the supervising doctor. The supervising doctor itself holds responsibility for any action taken on patients. The supervising doctor must give an agreement, so the procedure for action requires a longer waiting time. This study was only conducted for one week so it requires further research with a longer observation time.

Conclusion

The response time for traumatic patients has not met the applicable standards and the response time for non-traumatic patients has met the applicable standards. There was no difference in the response

time of medical personnel in trauma and non-traumatic patients handling ($p > 0,05$). Overall, it was found that the average emergency room's response time at Soetomo Hospital still met the applicable standards.

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Conflict of Interest

The author stated there is no conflict of interest

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