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PREVALENCE AND RISK FACTORS OF ADMISSION CAUSE IN INTENSIVE CARE UNIT (ICU). A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Intensive care unit (ICU) is considered one of the important and sensitive units in the medical field, as this unit is concerned with patients who are unconscious, as a result of their injury to the brain, such as severe bleeding and stroke due to blood pressure. **Aim:** To assess the characteristics and causes of admission among cases to intensive care unit with different ages in Baghdad- Iraq. **Methods:** A cross-sectional study were conducted in the intensive care unit in Baghdad. Semi-structured questionnaire was used to collect the information from the records. The sample size was 480 cases. Data was described by using the descriptive statistics such as frequency, percentage, Fisher chi-square, and p. value. STATA version 14 statistical package was used to analyze the data. **Results:** We found that 60.2% were male cases and 39.8% were female cases. Highest frequency of cases 63.3% occur in the age groups more than 50 years old, traumatic brain in 30.8%, 42.5% of patients died. There are not significant relation between age, gender, outcomes and the causes of admission at p. values less than 0.05. **Conclusion:** We concluded a traumatic brain injury is a major cause of admission, followed by cancer, complication after surgery, CVA and RTA. The percentage of LS (Length of Stay) in the ICU for more than 14 days was higher and it's dependent on the patient conditions. **Recommendation:** We need further researches on this field to decrease the number of admission to this unit. Therefore, to decrease the mortality and morbidity among people.

KEYWORD: Intensive care, Patients, Dead, Traumatic brain, Length of stay.

INTRODUCTION

Intensive care unit (ICU) is considered one of the important and sensitive units in the medical field, as this unit is concerned with patients who are unconscious, as a result of their injury to the brain, such as severe bleeding and stroke due to blood pressure and the like, and coma that requires monitoring the patient in the intensive care unit, until the symptoms that pose an imminent threat to the patient's life disappear, as well as severe head injuries such as those caused by car accidents and other violent accidents.[1,2]

Society of Critical Care Medicine reported more than 5 million patients are admitted annually to ICU for intensive or invasive monitoring; support of airway, breathing, or circulation; stabilization of acute or life-threatening medical problems; comprehensive management of injury and/or illness; and maximization of comfort for dying patients.[3]

The patient, after undergoing a major and risky surgery, needs special care and close monitoring provided by the Intensive Care Department for such cases, which carry with them risks that may be dire to the lives of patients if they are not alerted, in order to avoid the occurrence of complications that are not yet calculated undergoing the surgery, and children with serious problems associated with childbirth, such as heart anomalies or bleeding in the brain, also need intensive care to ensure their return to normal life without any risks.[4,5,6,7]

For example, some patients are not able to breathe spontaneously and naturally, and in general, there are many different situations that required for intensive care, and among the common causes of admission as a serious accident such as road accidents, severe head injuries, a dangerous fall, or severe burns.[8] So, dangerous short-term condition likes a heart attack or a stroke[9] or had a serious infection like acute pneumonia.[10]

A study conducted in Brazil, the author show that the main causes of admission were respiratory tract diseases (37.3%), followed by sepsis (36.3%), gastrointestinal tract (36%) and orthopedic (33%) were predominant.[12] Other studied in India shows that cardiovascular and respiratory problems are major reasons for an ICU admission.[13, 14] But a study conducted in Saudi, the authors found that the traumatic brain injury is a main

cause of admission to ICU among all causes.[15] From this point, the study aimed to assess the characteristics and causes of admission among cases to intensive care unit with different ages in Baghdad- Iraq.

METHODOLOGY

A cross-sectional study were conducted in the intensive care unit in five hospitals in Baghdad. All the cases admitted from January 2020 to the end of October 2020 was enrolled in this study. We included all the cases of various reasons. Semi-structured questionnaire was used to collect the information from the records. The sample size was 480 cases. Data was described by using the descriptive statistics such as frequency, percentage, Fisher chi-square, and p. value. STATA version 14 statistical package was used to analyze the data. Ethical clearance was obtained from the Ministry of Health/ Iraq. Oral and written informed consent was obtained from the relative of the participant because of the participants are unconscious.

RESULTS

Out of four hundred and eighty, there is 60.2% (289/480) were male cases and 39.8% (191/480) were female cases. The highest frequency of cases 63.3% (147/480) occur in the age groups more than 50 years old , followed by 33.9 %(163/480); 10.8%(52/480) and 9.6(46/480) in the age less than 20 years old and 21 up to 40 years old, respectively[Table 1]. There is no significant association between age groups and gender at $p < .05$.

Table 1: Distribution of studied samples according to age groups and gender.

Age groups	Gender				Total	
	Male		Female			
	Frequency	%	Frequency	%	Frequency	%
Less than 20	93	32.2	70	36.7	163	33.9
21-30	32	11.1	14	7.3	46	9.6
31-40	31	10.7	21	11.0	52	10.8
41- 50	27	9.3	18	9.4	45	9.4
More than 50	106	36.7	68	35.6	174	36.3
Total	289	100	191	100	480	100
The chi square is 2.40; P. value is 0.662. The result is not significant at p. value $<$ 0.05						

According to causes of admission in ICU, the highest frequency 30.8 %(148/480) of patients had traumatic brain injury and were the major cause of admission, followed by cancer 15.8 %(76/480) and 13.1 %(63/480) of them were suffering from complication after surgery [Table2].

Table 2: Distribution of studied samples according to causes of admission.

Causes of admission	Frequency	Percentage
Complication after surgery	63	13.1
Gunshot	22	4.6
RTA	34	7.1
CVA	52	10.8
Respiratory infection	29	6.1
Falls	24	5
Cancer	76	15.8
Hypertension	32	6.7
Traumatic brain injury	148	30.8
Total	480	100

Regard to outcomes of admission, 42.5 %(204/480) of patients were died after admission to ICU, followed by 39.4 %(189/480) of them were improvement and 18.1 %(87/480) were convert to another unit after admission to ICU [Table3]. There is no significant association between outcomes and gender at $p < .05$.

Table 3: Outcomes of admission related to gender.

Outcomes	Gender				Total	
	Male		Female			
	Frequency	%	Frequency	%	Frequency	%
Improvement	110	38.1	79	41.4	189	39.4
Convert to another unit	49	16.9	38	19.9	87	18.1
Death	130	45.0	74	38.7	204	42.5
Total	289	100	191	100	480	100
The chi-square statistic is 1.91. The p-value is 0.382. The result is not significant at $p < .05$.						

The highest frequency of male dead 63.7% (130/204) in ICU were more than female cases 36.3 %(74/204) [Table 4]. There is no significant association between age groups and death by gender at p < .05. In figure[1], shows that the 62.9 % of them had long period of stay in ICU for more than 14 days.

Table 4: Distribution of studied samples according to death by age groups and gender.

Age groups	Death				Total	
	Gender					
	Male		Female			
	Frequency	%	Frequency	%	Frequency	%
Less than 20	26	20.0	25	33.8	51	25
21-30	13	10.0	2	2.7	15	7.4
31-40	17	13.1	5	6.8	22	10.8
41- 50	10	7.7	6	8.1	16	7.8
More than 50	64	49.2	36	48.6	100	49
Total	130	100	74	100	204	100
The Fisher Chi square is 8.75, the P .Value is 0.067. The result is not significant at p<0.05.						

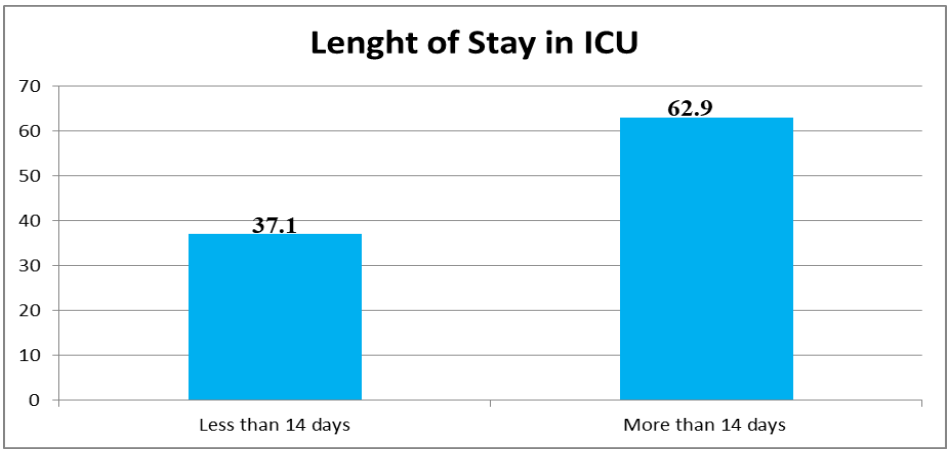

Figure 1: Length of stay among inpatients in ICU by days.

DISCUSSION

This study aimed to assess the characteristics and causes of admission among cases to intensive care unit with different ages in Baghdad- Iraq. Previous studies confirmed that the age has a relationship with the reason of admission to intensive care unit especially among the adults and elderly people. In our study, we found that the majority of cases 36.3% of entry were for the age of more than 50 years and the reasons for admission varied according to the patient's condition. Compared with another results in USA[16] and in India[17], they found the same our result. This refers to the most cases are suffering from the same condition. In some studies they found a difference between gender as most of the admittance was for males more than females and this also has a relation to the causes and incidents experienced by both gender.[17] In our study, the number of cases was admitting to ICU, 60.2% were male and 39.8% were female cases. Compare with a result from India[18], they found the male cases are admitting to ICU more than female. This is refers to the males are more susceptible to disease and accidents than others, especially car accidents. In addition to, some accidents are related to the type of occupation and the extent of stress that the patient is exposed to during the period of work. Therefore, the deterioration of the economic situation, health and security in general, the absence of law and awareness which is increased the incidence of accidents, especially among adults, and this negatively affected the rate of entry and death. But the common is the traumatic brain injury. In our study, the highest frequency of admission causes to ICU was a traumatic brain injury 30.8%, followed by cancer 15.8 %, complication after surgery 13.1%, CVA 10.8%, RTA 7.1%, hypertension 6.7% and respiratory infection 6.1%. Compared with other studies from Iraq[19], Saudi[15,20], US[21], and Finland[1], the reasons for admission of intensive care unit vary among countries according to lifestyle and culture among countries. The outcomes are related to the reasons for admission; the type of treatment, and the services which are received by each patient, and it varies from case to case. In our results, we found that the majority 42.5% of died patients occur during their stay in the care room, which is similar to the study found from US.[21] This similarity is due to the fact that most cases have the same reasons and characteristics of the patient.

CONCLUSION

Majority of cases occurs in the age groups more than 50 years old, males cases were more than female cases. A traumatic brain injury is a major cause of admission,

followed by cancer, complication after surgery, CVA and RTA. Length of stay among patients in ICU for more than 14 days was higher according to causes of admission. There are not significant relation between age, gender, outcomes and the causes of admission at p. values less than 0.05.

Recommendation

We need further researches on this field to decrease the number of admission to this unit. Therefore, to decrease the mortality and morbidity among people.

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