

ONE MONTH POST INTENSIVE CARE UNIT DISCHARGE OUTCOME

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ABSTRACT

Objective: To determine the outcomes of patients discharged from a general intensive care unit one month after discharge.

Study Design: Descriptive case series.

Place and Duration of Study: Intensive Care Unit - National Hospital and Medical Centre Lahore, from Jan 2018 to Dec 2018.

Methodology: All patients of both genders and age more than 12 years were included. Follow up was done through a phone call to the contact number provided, one-month post intensive care unit discharge. Information regarding outcome i.e. survival, bed bound state, degree of dependence for day to day activities and return to routine life.

Results: A total of 106 cases were recruited, out of which 55.7% were male and 44.3% female; mean age was 56.86 ± 23.16 years. At 1-month intensive care unit discharge 8.49% of the patients were dead; 73.58% cases had returned to pre intensive care unit admission routines, 11.32% were partially dependent on someone, 6.6% were bed bound. Death and bed bounding was highest in 60 year or older patients ($p=0.03$). All 9 cases who had died and 7 who were bed bound were admitted through emergency and remained admitted in the hospital for more than 7 days with $p=0.0001$. 77.8% of patients who died, 66.7% of patients who were partially dependent and all the bed bound patients required needed ventilation during intensive care unit admission with $p=0.0001$.

Conclusion: In our series 20% of the patients were either dead or dependent for their daily survival one month after discharge from intensive care unit.

Keywords: Death, Intensive care unit, Medical, Surgical.

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INTRODUCTION

Intensive care units (ICU) have played a great role in the survival of the critically ill patients; critical illness and its management in the ICU has a major impact on short and long term survival and quality of life. This impact is becoming more pronounced with availability of bigger data and resulting awareness about emerging trends^{1,2}.

There are number of leading diagnosis that need cardiovascular or respiratory support or in cases of neurosurgical or neurology diagnosis, monitoring of the consciousness can be one factor that lead to ICU stay; which itself adds to overall mental or psychological trauma due to fear of intensive care admission. The other factors like isolation from the family, bed bound state, extensive medications also add to overall morbidity³.

More recently, major complications in ICU discharge include death, serious disability leading to bed bound state, focal deficit leading to temporary or permanent disability, wide range of cognitive dysfunctions, myopathies, depression anxiety etc. and all are covered under a wide domain of post- intensive care syndrome (PICS)^{4,5}.

The major predictors of the outcome in these survivor for their morbidity or physical well being include underlying disease, physical status at presentation, Glasgow coma scale (GCS) in neurological cases, length of hospital stay and mode of admission i.e. elective versus emergency⁶⁻⁸.

There are many tools and questioners for the assessment of functional and outcome status regarding both physical, mental and psychological state at post ICU discharge, but they are too complex and sometimes difficult to implement in basis level settings especially in the under developed countries. The data in post ICU discharge

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cases in Pakistan is lacking, that's why this study was planned at more of the fundamental level, whose target was to sensitize the community and bring a basic level foundation from which complex and more validated tools assisted studies can be done. The objective of this study was to determine the one month outcome in post ICU discharge cases.

METHODOLOGY

This was a descriptive case series study that was carried out at National Hospital and medical centre, Lahore during January 2018 to December 2018. The cases of both genders and age >12 years were included. The cases were selected irrespective of the diagnosis leading to ICU admission. The cases that were not contacted or not willing to disclose the information were excluded from the study. The detailed clinical information regarding type of diagnosis (medical/surgical), mode of admission (elective/emergency) and history of ventilation was taken. These cases were assessed at one-month post ICU discharge regarding different outcome i.e. death, bed bound state, partially dependence on someone for day to day activities or back to routine life.

Statistical Analysis

The data was entered and assessed by using SPSS version 23.0. Qualitative variables were presented in the form of frequency and percentages and quantitative variables were presented as mean and standard deviation. Post stratification chi square test was applied taking *p*-value of ≤0.05 as significant.

RESULTS

In this study there were total 106 cases, out of which 55.7% males and 44.3% females with a mean age of 56.86 ± 23.16 years. There were 52.8% of the cases admitted for surgical causes and 50.9% were elective admissions as shown in table-I. At 1-month ICU discharge 73.58% cases were back to work, 11.32% were partially dependent due to some physical disability, 6.6% were bed bound and 8.49% were dead as in figure. There was no significant difference in terms of gender and outcomes with *p*=0.86 (table-II). Dea-

th and bed bounding was highest in cases with age 60 or more years with *p*=0.03 as in table-IV. One-month mortality was seen in all 9 cases and the all 7 bed bound cases were seen in cases that had admission due to emergency cause and hospital admission for more than 7 days with *p*=0.0001

Table-I: Demographics of study subjects.

Variables	Mean ± SD	Range
Age	56.86 ± 23.16	13-92
Hospital stay	7.04 ± 5.41	1-35
Variables	Frequency	%age
Male	59	55.7
Female	47	44.3
H/o ventilator	38	35.8
H/o no ventilator	68	64.2
Medical cause	50	47.2
Surgical cause	56	52.8
Elective	54	50.9
Emergency	52	49.1

Table-II: Outcome with respect to gender.

Outcome	Cause of admission		<i>p</i> -value
	Elective n (%)	Emergency, n (%)	
Death	4 (44.4)	5 (55.6)	0.86
Back to routine life	45 (57.7)	33 (42.3)	
Partially dependent	6 (50)	6 (50)	
Bed bound	4 (57.1)	3 (42.9)	
Total	59 (55.6)	47 (49.06)	106

Table-III: Outcome with respect to age.

Outcome	Age			<i>p</i> -value
	<30 n (%)	30-59 n (%)	≥60 n (%)	
Death	2(22.2)	1(11.1)	6(66.7)	0.03
Back to work	14(17.9)	34(43.6)	30(38.5)	
Partially dependent	3(25)	1(8.3)	8(66.7)	
Bed bound	-	1(14.3)	6(85.7)	
Total	19(17.92)	37(34.90)	50(47.18)	106

Table-IV: Outcome with respect to diagnosis at admission.

Outcome	Diagnosis at Admission		<i>p</i> -value
	Medical n (%)	Surgical n (%)	
Death	8 (88.9)	1 (11.1)	0.02
Back to work	31 (39.7)	47 (60.3)	
Partially dependent	6 (50)	6 (50)	
Bed bound	5 (71.4)	2 (28.6)	
Total	50 (47.17)	56 (52.83)	106

each as shown in table-V & VI. There were 77.8% dead cases, 100% bed bound and 66.7% cases that were partially dependent who needed ventilation during ICU admission with $p=0.0001$ (table-VII).

Table-V: Outcome with respect to cause of admission.

Outcome	Cause of Admission		p-value
	Elective n (%)	Emergency n (%)	
Death	-	9 (100)	0.0001
Back to work	52 (66.7)	26 (33.3%)	
Partially dependent	2 (16.7)	10 (83.3)	
Bed bound	-	7 (100)	
Total	54 (50.94)	52 (49.06)	

Table-VI: Outcome with respect to Hospital stay.

Outcome	Hospital Stay (days)		p-value
	Up to 7 n (%)	>7 n (%)	
Death	-	9 (100)	0.0001
Back to work	68 (87.2)	10 (12.8)	
Partially dependent	2 (16.7)	10 (83.3)	
Bed bound	-	7 (100)	
Total	70 (66.03)	36 (33.97)	

Table-VII: Outcome with respect to Ventilator therapy.

Outcome	Ventilator Therapy		p-value
	Yes n (%)	No n (%)	
Death	7 (77.8)	2 (22.2)	0.0001
Back to work	16 (20.5)	62 (79.5)	
Partially dependent	8 (66.7)	4 (33.3)	
Bed bound	7 (100)	-	
Total	38 (35.9)	68 (64.1)	

DISCUSSION

Critical illness has a great impact not only in short term basis but also after the discharge from the ICU settings. Achievement of the baseline activity or optimal life style is a great challenge and there is significant physical, social, psychological and emotional affect of ICU admission in case needing it¹¹.

In the present study outcome was assessed at 1-month after ICU discharge and it was seen that after this time 73.58% cases were back to their

baseline routine life, 11.32% were partially dependent due to some ailment, 6.6% were bed bound and mortality was seen in 8.49% of the cases. The results were very variable in the past and depends of upon the degree of severity of the including patients and also the variation of the available resources in the developed and under developed countries^{11,12}. According to a study done by Wise *et al* it was seen that mortality was seen in 59 (25.9%) of their cases within 30 days, which was three times more than the present study¹².

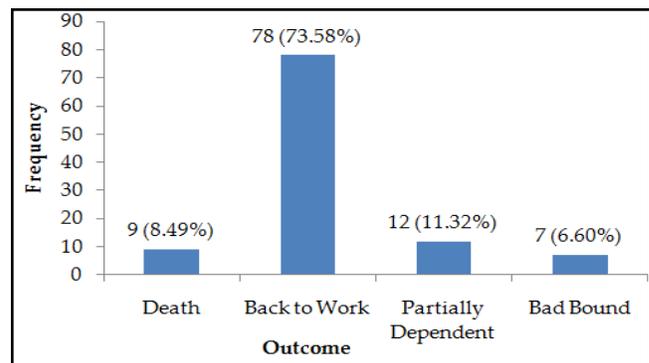


Figure: Outcome.

One-month mortality was seen in all 9 cases and the all 7 bed bound cases were seen in cases that had admission due to emergency cause and hospital admission for more than 7 days with $p=0.0001$. These results were also supported by the findings of the studies done in the past which have shown that mortality rate ranged from 20-25% cases that had admission on emergency grounds. Furthermore, they also revealed that the length of hospital stay was also longer in cases that were admitted due to emergency admissions^{13,14}. This can be explained by the factor that the cases that were electively admitted had a better clinical condition as compared to critically ill crashing in emergency. As these cases can be post cardiac arrest and hypoxic injuries due to respiratory or cardiac failure can result in an irreversible cardiac or neurological damage that can be fatal. Further more it was also observed that even worst outcome was observed in cases that needed ventilation during the course of their treatment in ICU and it was observed that 77.8% dead cases, 100% bed bound and 66.7% cases that

were partially dependent were ventilated in ICU with $p=0.0001$. This can indirectly explain the seriousness of the underlying condition or may be post respiratory or cardiac even sequel that led to ventilatory assistance and hence its associated complications. The major complications that lead to fatality and the bed bound state can be ventilator associated pneumonia (VAP), myopathies and delirium can be the possible causes to explain this.

In another study done by Uppanisakorn *et al* it was seen that early deterioration was observed in 14.8% of the cases after ICU discharge and the cases that led to cardiac or respiratory failure within 24 hours of admission led to poor outcome and for that, they devised a score called as National early warning score (NEWS) to predict the post ICU discharge outcome and a score of NEWSdc>7 had sensitivity and specificity of 93.6% and 82.2%¹⁵.

In another study done by Duarte *et al* it was seen that after ICU discharge there were a number of limitations in the activities. Reduction in peripheral muscle strength was seen in 5.7%, weight loss in 11.7%, abnormal spirometry in 49% and psychological issues in 49% of the cases¹⁶. Post ICU discharge psychosis, delirium, myopathies and neuropathies are well known entities and one important cause of bed bound state.

In our study there were 52.8% of the cases admitted for surgical and 47.2% medical causes and 50.9% were elective admissions and the rest had emergency admissions. The results were variable in the past and majority of them revealed that emergency admissions were higher and furthermore, 25-38% of the cases were admitted for infectious causes¹⁷. The outcomes and morbidity and mortality rates strongly rely upon the type of ICU care, which can further be divided into medical, surgical, neuro ICU and can be mix of these. As in surgical and neuro surgical cases, the majority of the admissions are elective as compared to medical ICUs where, a great burden of the cases end up with organ failures and hence have poor outcome in terms of mortality rate, bed bound

state and with need of home care for longer term management^{18,20}.

CONCLUSION

The outcome after ICU discharge is variable and almost 20% of the cases either die or become dependent due some physical limitation. The worst outcome was seen in cases with higher age, emergency hospital admission, medical causes, longer hospital stay and history of ventilation in ICU.

CONFLICT OF INTEREST

There is no conflict of interest to be declare by any author.

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