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Assessment of Pattern of Various Respiratory Disorders among Patients Admitted to Respiratory ICU: An Observational Study

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ABSTRACT

Background: Intensive care represents the highest level of continuing patient care and treatment. Respiratory ICUs (RICUs) have developed around the world as specialized single organ units providing an intermediate level of care between that supplied in ICUs and in general wards. This study was carried out to determine the different patterns and outcome of admitted cases to Respiratory Intensive Care Unit.

Materials & Methods: The present study included assessment of patients admitted to medical and pulmonary ICU because of various respiratory diseases. A total of 50 patients were included in the present study. Outcome was assessed under following headings; Discharge under satisfactory condition, Discharge on request and Death. All the results were analyzed by SPSS software.

Results: COPD (Chronic obstructive pulmonary disease) was the most common pathology observed seen in 38 percent of the patients followed by Pneumonia and bronchial asthma seen in 16 and 14 percent of the patients respectively.

Conclusion: For the best prognosis in admitted patients to RICU there are many factors associated with it, especially short duration of stay in RICU and without the need for mechanical ventilation.

KEYWORDS: Disorder, Intensive Care Unit, Respiratory.

INTRODUCTION

Intensive care may be broadly defined as a service for patients who have potentially recoverable conditions, who can benefit from more detailed observation and invasive treatment that can be provided safely in a high dependency area. Intensive care represents the highest level of continuing patient care and treatment.[1-3] A patient whose condition is extremely serious, possibly life-threatening, is often taken to an Intensive Care Unit (ICU) which provides constant observation and treatment from specially trained staff qualified to use specialised equipment. RICU is defined as "an area for the monitoring and treatment patient with acute respiratory failure due to primary respiratory cause and of patient with acute or chronic respiratory failure".[4,5]

Respiratory ICUs (RICUs) have developed around the world as specialized single organ units providing an intermediate level of care between that supplied in ICUs and in general wards.[6,7]

This study was carried out to determine the different patterns and outcome of admitted cases to Respiratory Intensive Care Unit.

MATERIALS & METHODS

The present study was planned in the department of pulmonary medicine, Government District Hospital, Barmer, Rajasthan (India) and included assessment of patients admitted to medical and pulmonary ICU because of various respiratory diseases. A total of 50 patients were included in the present study. Ethical approval was taken from institutional ethical committee and written consent was obtained after explaining in detail after explaining in detail the entire research protocol. Patients of respiratory diseases admitted to pulmonary ICU and medical ICU were included in the present study. Exclusion criteria for the present study included:

- Patients with age less than 18 years
- Patients with re-admission to ICU during same hospitalization
- Patients with less than 24 hours between ICU admission and discharge
- Patients who refused consent to participate in study

Complete demographic and clinical details of all the patients were recorded. Blood investigations were

carried out in all the patients along with their pulmonary functional tests. Outcome was assessed under following headings;

- Discharge under satisfactory condition
- Discharge on request
- Death

All the results were analyzed by SPSS software. Student t test and Chi- square test were used for assessment of level of significant. P- value of less than 0.05 was taken as significant.

RESULTS

A total of 50 patients were included in the present study, out of which, 28 were males and 22 were females. Mean age of the patients of the present study was 47.5 years. COPD was the most common pathology observed seen in 38 percent of the patients followed by Pneumonia and bronchial asthma seen in 16 and 14 percent of the patients respectively. Death occurred in 24 percent of the patients while 56 percent of the patients were discharged under satisfactory conditions.

Table 1: Distribution of patients according to gender

Gender	No. of patients	Percentage
Male	28	56
Female	22	44
Total	50	100

Table 2: Distribution of patients according to diagnosis

Diagnosis	No. of patients	Percentage
Bronchial Asthma	7	14
Pneumonia	8	16
Pneumothorax	5	10
Pulmonary Tb	5	10
Bronchiectasis	4	8
Chronic Empyema	2	4
COPD	19	38
Total	50	100

Table 3: Distribution of patients according to the treatment outcome

Treatment Outcome	No. of patients	Percent
Death	12	24
Discharge in satisfactory condition	28	56
Discharge on request	10	20
Total	50	100

DISCUSSION

In the present study, we observed that males were more frequently admitted to RICU followed by females and COPD was the most common respiratory disorder detected. Begum A et al determined the characteristics and outcome of ventilated patients in the paediatric medical intensive care unit in a tertiary care teaching hospital, Telangana. A prospective descriptive study was conducted on ventilated children admitted to PICU from July to December 2015.The factors studied included demographic and clinical profile, length of stay on ventilator, indications for ventilation and the final outcome. A total of 144 (23%) cases admitted in PICU were ventilated over the period of six months. Male to female ratio was 1.36: 1.Neurological (27.8%) and respiratory (25.6%) causes were found to be the commonest indicators of ventilation in the study.

The average ventilator stay was 2.4 days and hospital stay was 9.71 days. 51% of ventilated cases were infants and 81% of total deaths occurred under five years age group.49.3% of ventilated cases were successfully discharged and neurological cases had a better outcome (64%) among all the cases. This study provided an insight into the present status of PICU in a government tertiary teaching hospital analyses the limitations and recommends the need to strengthen PICU to improve the quality care for the better survival of critically ill children.[8]

Chiwhane A et al conducted a study to understand characteristics and outcome of patients on invasive mechanical ventilation (IMV). Adult patients with failing respiratory drive and/or those who failed oxygen therapy or NIV (non-invasive ventilation) were considered eligible for invasive ventilation. Patients

exclusively on NIV were excluded (reason for exclusion was to study the outcome in an expensive intervention like IMV). Patients who were weaned and extubated and subsequently shifted to medicine ward were considered "good" outcome and "adverse" (not-extubated) if they died or sought discharge against medical advice. A total of 505 patients were present. Comorbidities were seen in 76.4% patients; significantly higher in not-extubated (94.85% vs 5.15%) (p = 0.008). The ICU stay, days on ventilation and total hospital stay were 5 (3–9) days, 2 (1–5) days and 5 (3–9) days respectively. Primary cause for IMV was sepsis, neurological, cardiac, renal and respiratory and others like envenomation, drug overdose, organophosphate poisoning, etc. Hypertension and diabetes were the commonest co-morbidities. The mortality in patients requiring invasive ventilation support from low-resource setting is high.[9] Pan SW et al identified the predictors for prolonged mechanical ventilation (PMV) of more than 21 days among intensive care unit (ICU) patients. The outcome measurement was the occurrence of PMV. Acute kidney injury (AKI) was identified and defined as an increase in the serum creatinine level of 50% or greater from baseline. Of 154 patients enrolled, 41 patients (26.6%) had PMV. Patients with PMV showed higher Acute Physiology and Chronic Health Evaluation II scores, lower serum albumin levels, and more AKI on mechanical ventilation (MV) initiation day compared with the non-PMV patients. Patients with PMV were significantly associated with longer MV duration before the day of readiness for weaning (DRW) and a higher rapid shallow breathing index on DRW. In a multivariate regression analysis, the independent risk factors for PMV were AKI on MV initiation day, longer MV duration before DRW, and higher rapid shallow breathing index on DRW. Acute kidney injury on MV initiation day is an independent risk factor for PMV of more than 21 days, which may be helpful for clinicians to refine their management of these ICU patients early.[10]

CONCLUSION

We concluded that for the best prognosis in admitted patients to RICU there are many factors associated with it, especially short duration of stay in RICU and without the need for mechanical ventilation. However; we direct future studies for better results.

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