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Original Research

Spectrum of pulmonary disease affecting the persons admitted to respiratory intensive care unit

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ABSTRACT

Background: Respiratory Intensive Care Unit (RICU) patients are a heterogeneous group with severe illness, multiple system dysfunction and multiple coexisting medical problems. Hence; under the light of above obtained data, the present study was undertaken for assessing the spectrum of pulmonary disease affecting the persons admitted to respiratory intensive care unit. **Materials & methods:** A total of 50 patients with various respiratory diseases were analysed. Complete demographic details of all the subjects were obtained. Complete medical and past family history was also obtained. Assessment of different outcome variable was calculated in terms of percentages on excel program. **Results:** Common reason for admission to RICU in the present study included Bronchial Asthma, Bronchiectasis, Chronic Empyema, Chronic obstructive pulmonary disease (COPD), Pneumonia, Pneumothorax, and Pulmonary Tuberculosis. The most common were bronchial asthma and COPD. **Conclusion:** Bronchial asthma and COPD are the most common reasons for patients in RICU. However; further studies are recommended.

Key words: Pulmonary, Respiratory intensive care unit

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INTRODUCTION

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.[1-3] Respiratory Intensive Care Unit (RICU) patients are a heterogeneous group with severe illness, multiple system dysfunction and multiple coexisting medical problems. 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.[4] Depending on the patient's previous level of care, a RICU can provide: step-up care when admitting a patient transferred from a general ward, needing specific treatments, such as NIV or invasive ventilation and/or close monitoring, for an acute respiratory failure episode that developed during the hospital admission; or step-down care when a patient no longer requires all the facilities of an ICU but is not ready to be transferred to a general medical ward because of specific care needs (eg, management of tracheotomy) or still requires invasive ventilation.[5-7]Hence; under the light of above obtained data, the present study was undertaken for assessing the spectrum of pulmonary disease affecting the persons admitted to respiratory intensive care unit.

MATERIALS & METHODS

The present study was conducted in the department of pulmonary medicine and it included assessment of spectrum of pulmonary disease affecting the persons admitted to respiratory intensive care unit.

Sample Size

A total of 50 patients with various respiratory diseases

Ethical approval

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.

Inclusion criteria
Patients of respiratory diseases admitted to pulmonary ICU

Complete demographic details of all the subjects were obtained. Complete medical and past family history was also obtained.

Statistical analysis
Assessment of different outcome variable was calculated in terms of percentages on excel program. All the results were analyzed by SPSS software version 17.0. Chi-square test and One way ANOVA were used for assessment of level of significant. P- value of less than 0.05 was taken as significant.

RESULTS
In the present study, a total of 50 patients were analysed. Mean age of the patients of the present study was 15.6 years. 56 percent of the patients of the present study were males while remaining 44 percent were females. Common reason for admission to RICU in the present study included Bronchial Asthma, Bronchiectasis, Chronic Empyema, Chronic obstructive pulmonary disease (COPD), Pneumonia, Pneumothorax, and Pulmonary Tuberculosis. The most common were bronchial asthma and COPD.

Table 1: Mean age of the patients included in the present study

Parameter	No. of patients	Range	Minimum	Maximum	Mean	Std. Deviation
Age (years)	50	71	18	85	52.8	15.6

Graph 1: Gender-wise distribution of patients

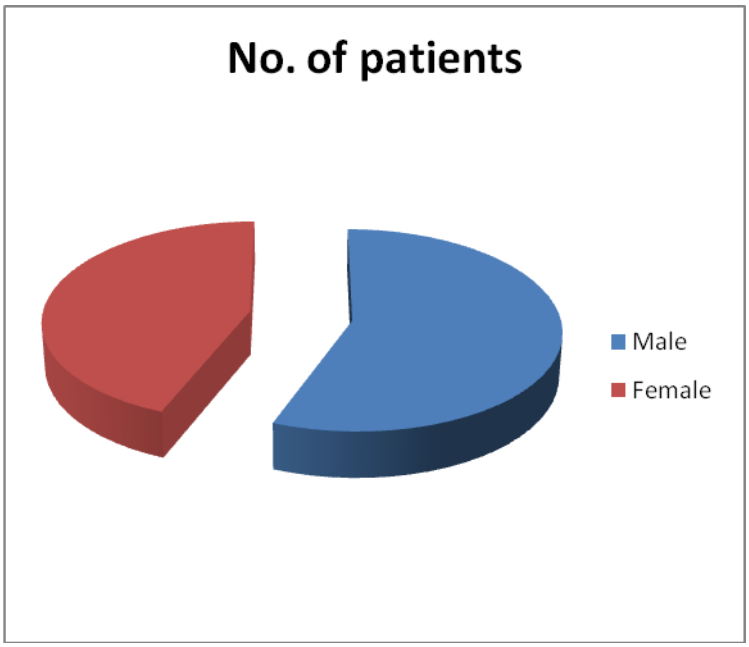

Table 2: Distribution of patients according to diagnosis

Diagnosis	No. of patients	Percentage
Bronchial Asthma	10	20
Bronchiectasis	3	6
Chronic Empyema	4	8
COPD	15	30
Pneumonia	7	14
Pneumothorax	6	12
Pulmonary Tb	5	10
Total	50	100

DISCUSSION

Respiratory diseases can arise from a number of causes, including inhalation of toxic agents, accidents, and harmful lifestyles, such as smoking. Infections, genetic factors, and anything else that affects lung development, either directly or indirectly, can cause respiratory symptoms.[2- 4]

Chronic respiratory diseases including asthma, allergic rhinitis (AR), chronic obstructive pulmonary disease (COPD), and rhinosinusitis account for 4 million deaths annually and contribute to 8.3% of the overall burden of chronic diseases. Respiratory diseases have a major adverse impact on the individual and the community in terms of quality of life, productivity, and economic burden. In recent years, the Asia-Pacific region has undergone a period of rapid growth, urbanization, and economic change, which has been accompanied by an increase in respiratory diseases prevalence.[4, 5]

Intensive care has been shown to benefit patients who are severely ill and medically unstable that is, they have a potentially life threatening disease or disorder. About one third of hospital mortality occurs in critically ill patients inside ICU. It is well accepted that early appropriate referral of patients to an ICU can significantly reduce early and possibly late mortality in the critically ill. At the same time improper selection of patients for ICU who block ICU beds often limits bed availability in ICUs. This in turn, adversely affects the dynamics of the whole hospital.[8- 10]

In the present study, a total of 50 patients were analysed. Mean age of the patients of the present study was 15.6 years. 56 percent of the patients of the present study were males while remaining 44 percent were females. Confalonieri M et al conducted a national survey of RICUs using a questionnaire which comprised over 30 items regarding location, models of service provision, staff, and equipment. They surveyed the patient population admitted to the RICUs. From the results, they concluded that Italian RICUs were specialised units mainly devoted to the monitoring and treatment of acute on chronic respiratory failure by non-invasive ventilation, but also to weaning from invasive mechanical ventilation.[11]

In the present study, common reason for admission to RICU in the present study included Bronchial Asthma, Bronchiectasis, Chronic Empyema, Chronic obstructive pulmonary disease (COPD), Pneumonia, Pneumothorax, and Pulmonary Tuberculosis. The most common were bronchial asthma and COPD.Bolaji and Kolawole found that the two most common indications for admission to ICU were status asthmaticus and respiratory failure (3.7% for each). However, David et al. found that neuromuscular weakness, pneumonia, septic shock, respiratory arrest, congestive heart failure, cardiac arrest, were the most common indications for medico-surgical ICU admission in their study.[12]

Nabeel MS et al examined the clinical characteristics, weaning pattern, and outcome of patients requiring prolonged mechanical ventilation in acute intensive care unit settings in a resource-limited country. The definition of prolonged mechanical ventilation used was that of the National Association for Medical Direction of Respiratory Care. During the one-year period, 49 patients with a mean age of 49.7 years had prolonged ventilation; 63% were male, and 84% had a medical illness. The median APACHE II and SOFA scores on admission were 17 and 9, respectively. The median number of ventilation days was 37. The most common reason for starting ventilation was respiratory failure secondary to sepsis (67%). Weaning was initiated in 39 (79.5%) patients, with success in 34 (87%). The median weaning duration was 14 (9.5 - 19) days, and the median length of intensive care unit stay was 39 (32 - 58.5) days. Duration of vasopressor support and need for hemodialysis were significant independent predictors of unsuccessful ventilator liberation. At the 12-month follow-up, 65% had survived. In acute intensive care units, more than one-fourth of patients with invasive ventilation required prolonged ventilation. Successful weaning was achieved in two-thirds of patients, and most survived at the 12-month follow-up.[13]

CONCLUSION

From the above results, the authors concluded that bronchial asthma and COPD are the most common reasons for patients in RICU. However; further studies are recommended.

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