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Research Article

ROLE OF NON INVASIVE VENTILATION IN DEPARTMENT OF PULMONOLOGY AND ITS EFFECTIVENESS IN NON COPD (TYPE 1) RESPIRATORY FAILURE PATIENTS

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ABSTRACT
Non-invasive respiratory support has been used in Cardio pulmonary recitation for many years. The present study provides strong evidence for the use of NIV as a first line Intervention in patients with Acute Respiratory Failure (Type 1) High Failure rates of NIV in Non COPD Type 1 patients suggests early ventilator support in this patient who has hypoxic and other compounding factors.

Keywords: *NIV, Non COPD*

INTRODUCTION
Data on successful application of NIV in patients with acute hypoxemic respiratory failure is less and conflicting. This is mainly due to varied etiologies in the sub groups of patients causing hypoxemic respiratory failure (HRF) included in most of the published studies. The first RCT of NIV among non-COPD patients with HRF, conducted by Wysocki (2001) found no benefit in terms of reduction of intubation rate or hospital mortality. Since then, a number of randomized controlled trials that included patients of HRF have produced conflicting results presented by Confalanieri *et al.,* (1999). Recently, a few studies have focused on some of the individual diagnoses within the large category by Hodsen *et al.,* (1991). It has been found to be very effective in cardiogenic pulmonary edema. NIV may also be efficient when some components or degree of cardiac decompensation participates in the clinical feature, even if it is not the main or only cause of episode of respiratory failure, shown by Bertsten *et al.,* (1991), Lim *et al.,* (1995), Masip *et al.,* (2000) and Delclaux *et al.,* (2000).

MATERIALS AND METHODS
This prospective study was conducted to assess the efficacy of institution of NIV (BIPAP) in patients with acute exacerbation of Non COPD patients, (Type1) respiratory failure whose condition did not improve with initial medical therapy.
All patients presenting with Acute Respiratory Failure (Type I failure) Non COPD, are randomly entered into the study after they met the Inclusion and Exclusion criteria for Noninvasive ventilation.
The baseline clinical parameters were recorded and an ABG measurement was obtained in all patients following initial medical therapy.
NIV (BIPAP) was instituted to patients in Acute Type 1 Respiratory Failure who were unresponsive to initial medical therapy. A portable Noninvasive Ventilator with monitor (BIPAP, RESPIRONICS R, NIPPY's and SERENA) was used in the spontaneous mode using Full face mask or Nasal mask R (Respironics) depending on the patients status.
The initial trial parameters (in spontaneous mode) were 8 cm H2O of IPAP and 4 cmH2O of EPAP with oxygen flow rate of 2-4 L/minute. IPAP and EPAP parameters were titrated to optimize patient comfort.
Each patient was continuously monitored for level of co-operation, mental status, Physical appearance, oxygen saturation, signs of air leakage around the mask and vital signs. Standard medical treatment including inhalational drugs, intravenous corticosteroids, xanthenes and whenever appropriate, antibiotics, furosemide or vasoactive agents were given in addition to BIPAP.
Once stable settings were achieved, a Post-trial ABG level was obtained in all patients at the onset of NIV after 20 minutes of institution of NIV and after 1 hour of NIV therapy to assess adequacy of ventilation. If

satisfactory degree of patient comfort, ventilation and oxygenation were not achieved by 1 hour, NIV(BIPAP) was discontinued, the patient was intubated and conventional mechanical ventilator support was provided.

NIV (BIPAP) was given continuously for 1 hour and then depending on response, treatment with BIPAP was considered "Successful" if clinical and functional improvement had been achieved and "Failure" if patient was intubated and mechanically ventilated or inadvertent death occurred. Data was analyzed by the "Paired t Test" using the "WindostatR" software.

RESULTS AND DISCUSSION

Table 1

Demographic data	**Non COPD = 22 (Type I Failure)**	**P value**
Gender		NS
Male	13	
Female	9	
Age	57.34 ± 12.40	NS

It was found that there were no significant differences in Gender and Age, as reveals in Table 1.

Table 2

Intubation Rate	**Non COPD Type 1 Failure (n=22)**	**P value**
No. of Intubations	9 (40.9%)	NS

Intubation rate was 40.9% in Non COPD (Type I Failure) patients as reveals in Table 2.

Table 3: Length of Stay

Length of Stay	**Non COPD Type 1 Failure**	**P value**
LOS	8.30 ± 1.22	NS

Length of stay in days is found to be 8 days in Non COPD group Type 1 Failure as mentioned in Table 3.

Table 4

Mortality	**Non COPD (n=22) Type 1 Failure**	**P value**
No. of Deaths	5 (22.7%)	NS

Mortality (No. of deaths) is found to be (7.69%) Non COPD (Type 1 Failure) group 5 (22.7%) as mentioned in Table 5.

The results of this study show that NIPPV can be utilized as an effective modality in the management of ARF due to diverse etiologies. Important advantages include patient comfort, maintenance of airway defenses, ability to eat and speak and avoiding complications of endo-tracheal intubation such as nosocomial pneumonia, injury to airways, aspiration and post-intubation laryngeal stenosis.

The disadvantages of NIV include slow improvement of gases, the need for conscious, co-operative patient and decreased ability to clear bronchial secretion. Successful treatment with NIV is associated

with an improvement in pH, PaO2 and PaCO2 at 1 hour of treatment. If variables do not improve, intubation should be considered.

This study provides strong evidence for the use of NIV (BIPAP) as a first line Intervention in patients with Acute Respiratory Failure irrespective of the Type and the Cause of Acute Respiratory Failure. Better monitoring of patient's clinical status after NIV administration improves the outcome in Non COPD patients.

High failure rates of NIV in Non COPD Type I ARF patients suggest early ventilator support in this patient who has hypoxic and other compounding factors.

Apart from Hypoxemia other compounding factors in Non COPD, mechanical ventilator should be provided as the earliest in order to avoid high mortality rate in these group of patients.

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