

THE FATE OF PATIENTS FOLLOWING ACUTE HYPERCAPNIC RESPIRATORY FAILURE

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Introduction

Acute hypercapnic respiratory failure (AHRF) is a type of ventilatory failure characterized by rise in PaCO₂ (> 45 mm Hg/ 6 kPa). The therapy of choice consists of causal treatment and Positive Pressure Ventilation (PPV). PPV can be non-invasive (NIPPV) or invasive with mandatory intubation or tracheostomy (IPPV). NIPPV can be delivered in two forms such as High Flow Nasal Oxygen Therapy (HFNOT) and Non-invasive Ventilation via face mask (NIV).

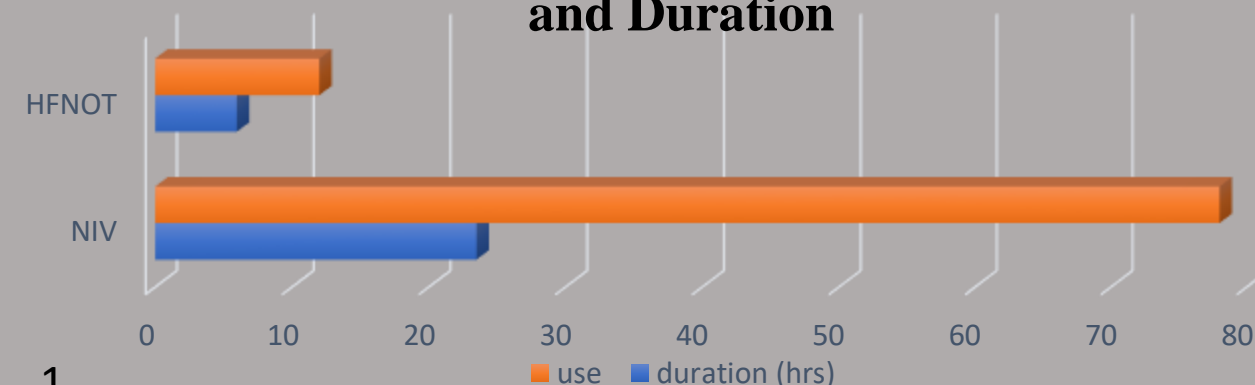
Objectives

The primary aim of the study was to compare the use and duration of HFNOT with NIV in AHRF on pulmonary ICU. The secondary aim was to measure the failure and mortality rates following the therapy.

Methodology

Retrospective data collection from documentation of patients suffering from AHRF admitted to the pulmonary ICU from 2015 to 2022. Data analysis was conducted using Microsoft Excel.

Chart 1. Comparison of HFNOT With NIV Use and Duration



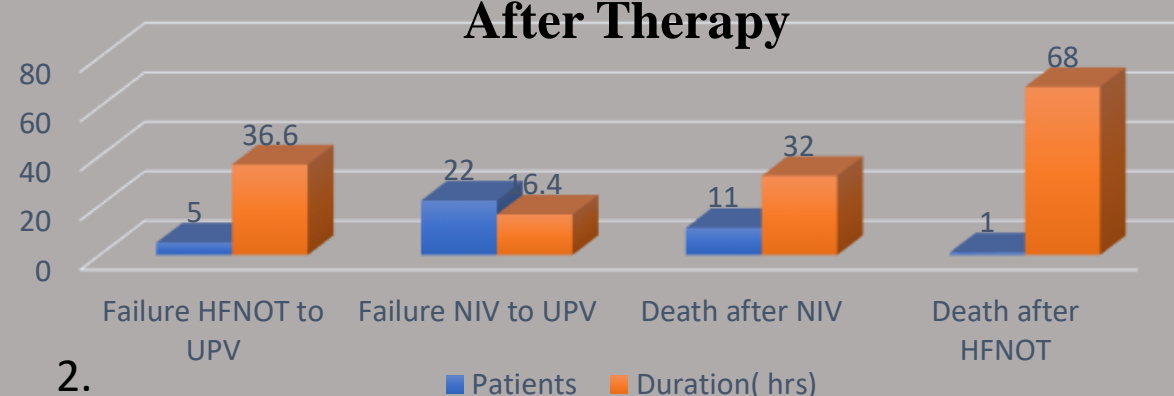
1.

Results

A total of 127 patients (male = 63%, female = 37%) were included in the study. Mean age: 68 years ± 11.99, BMI 29.621 ± 9.152.

Patients that were managed with HFNOT were 9.4% (n=12) with the average usage duration being 5.96 hours. In contrast, NIV was used 61.4% of cases (n=78), with an average duration of 23.50 hours.). From the patients, 4.7% (n =6) underwent escalation from HFNOT to NIV, five of these patients (4 %) required further escalation to invasive ventilation. HFNOT therapy that resulted in failure had an average duration of 36,6 hours. NIV failure occurred in 17.3% (n= 22) of patients which were ventilated for an average of 16,4 hours, consequently they were intubated. Patient mortality during hospitalization was 11.8 % (n= 15). A total of 5.5% of patients (n=7) underwent immediate intubation upon admission to the ICU. 15 patients (12%) had transient hypercapnic resp. failure.

Chart 2. Comparison of Failure and Death Rate After Therapy



2.

Pic. 1. chest xray of scoliosis



Source: University hospital Olomouc (FNOL)

Pic. 2. chest xray of heart failure and pneumonia



Source: University hospital Olomouc (FNOL)

Conclusion

In conclusion, our study reveals a predominant utilization of NIV over HFNOT, characterized by longer durations and higher success rates. Notably, a subtle trend emerged in 2020, indicating an increasing adoption of HFNOT, accompanied by a growing success rate. It is imperative to note that further data collection in subsequent years is essential for a comprehensive understanding of these evolving patterns.