

## Factors Associated with Commencement of Non-Invasive Ventilation

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**Abstract :** Introduction: In the past two decades, noninvasive positive pressure ventilation (NIPPV) emerged as one of the most important advances in the management of both acute and chronic respiratory failure in children. In the acute setting, it is an alternative to intubation with a goal to preserve normal physiologic functions, decrease airway injury, and prevent respiratory tract infections. There is a need to determine the clinical profile and parameters which point towards the need for NIV in the pediatric emergency setting. Objectives: i) To study the clinical profile of children who required non invasive ventilation and invasive ventilation, ii) To study the clinical parameters common to children who required non invasive ventilation. Methods: All children between one month to 18 years, who were intubated in the pediatric emergency department and those for whom decision to commence Non Invasive Ventilation was made in Emergency Room were included in the study. Children were transferred to the Paediatric Intensive Care Unit and started on Non Invasive Ventilation as per our hospital policy and followed up in the Paediatric Intensive Care Unit. Clinical profile of all children which included age, gender, diagnosis and indication for intubation were documented. Clinical parameters such as respiratory rate, heart rate, saturation, grunting were documented. Parameters obtained were subject to statistical analysis. Observations: Airway disease (Bronchiolitis 25%, Viral induced wheeze 22%) was a common diagnosis in 32 children who required Non Invasive Ventilation. Neuromuscular disorder was the common diagnosis in 27 children (78%) who were Intubated. 17 children commenced on Non Invasive Ventilation who later needed invasive ventilation had Neuromuscular disease. High frequency nasal cannula was used in 32, and mask ventilation in 17 children. Clinical parameters common to the Non Invasive Ventilation group were age < 1 year (17), tachycardia n = 7 (22%), tachypnea n = 23 (72%) and severe respiratory distress n = 9 (28%), grunt n = 7 (22%), SPO2 (80% to 90%) n = 16. Children in the Non Invasive Ventilation + INTUBATION group were > 3 years (9), had tachycardia 7 (41%), tachypnea 9(53%) with a male predominance n = 9. In statistical comparison among 3 groups, 'p' value was significant for pH, saturation, and use of Ionotrope. Conclusion: Invasive ventilation can be avoided in the paediatric Emergency Department in children with airway disease, by commencing Non Invasive Ventilation early. Intubation in the pediatric emergency department has a higher association with neuromuscular disorders.

**Keywords :** clinical parameters, indications, non invasive ventilation, paediatric emergency room

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