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Title: Non-invasive ventilation failure predictor factors in acute respiratory infections in children

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Body: Introduction: The use of noninvasive ventilation (NIV) has proved to be successful in acute respiratory failure (ARF) of children with chronic respiratory diseases; however, there is still no consensus as to its benefits in acute lower respiratory tract infections (LRTI). Objective: Describe the use of NIV in ARF in acute LRTI, and seek for possible factors associated to the failure of this type of therapy. Patients and method: Retrospective review of medical records of patients that received NIV for acute LRTI, during winter season 2010 at Hospital Josefina Martinez. Demographic and clinical variables were analyzed: heart rate (HR), respiratory rate (RR), oxygen arterial saturation and use of accessory musculature (UAM) at hours 0, 3, 12, 24 and 48 of use of NIV. Results: Of a total of 71 patients, 51% boys, age median 13 months (2-124), the most frequent admittance diagnosis was viral pneumonia 48%, median length of stay 6 days (2-15) and median duration of NIV: 3 days (1-11). Five patients needed endotracheal intubation and transfer to intensive care unit (NIV failure group). Comparing with the rest of the patients (NIV success group), there was significant difference in age, HR, RR, and UAM, during the first 3 hours after NIV connection. Conclusion: The use of NIV in respiratory failure in acute LRTI seems to be an effective ventilation strategy, appropriate for this population, with a high rate of success. The clinical parameters during the first 3 hours of NIV could be a useful tool at the time of redefining therapeutic options, as probable predictors of failure.