TJPRC: Journal of General Surgery, Anesthesiology
and Clinical Research (TJPRC: JGSACR)
Vol. 2, Issue 1, Dec 2016, 1-8

TRANS STELLAR
•Journal Publications •Research Consultancy

Original Article

ACUTE IMPLEMENTATION OF HIGH INTENSITY NON INVASIVE VENTILATION: REPORT OF A SERIES

PATRICIO RIOSECO[1], PAULA CRUCES[2], PATRICIA VELAZQUEZ[3], CLAUDIO VELAZQUEZ[4] & JAVIER RODRIGUEZ[5]

[1,2,3]Respiratory Unit Hospital Las Higueras, Talcahuano. Chile

[4,5]Residents of Internal medicine Universidad de Concepciòn. Chile

ABSTACT

High Intensity Non Invasive Ventilation (HINIV) refers to the use of Inspiratory Positive Airway Pressure (IPAP) up to 40 cm of water after several days of a titration and habituation period, with an Expiratory Positive Airway Pressure (EPAP) of around 4 cm of water in order to achieve optimal levels of PaCO2 as chronic treatment in stable hypercapnic COPD patients (1). Our working group assessed the feasibility of implementing HINIV in the acute setting by submitting patients failing to improve after 3 days of traditional NIV to a 60 minutes ramp to reach a mean IPAP of 31.4 cm of water and an EPAP of 4 cm of water in the controlled mode. We measured arterial blood gases (ABG) prior to installation, at 2 hours of HINIV and at the return to the initial programming. Tolerance was estimated every 10 minutes by means of a visual analogue scale 1 being intolerable and 10 excellent tolerability and hemodynamics measuring mean arterial blood pressure(MAP) and cardiac rate (CR).

Patients of 41 years (21-56) were admitted with a MAP of 78.6 mm Hg, CR of 92.2 beats per minute, en severe respiratory acidosis with a mean pH of 7.22 and mean PaCO2 of 78.3 mm Hg At day 3 of traditional NIV they showed no improvement maintaining a pH of 7.26 and a PaCO of 74.2mm Hg. After 2 hours of HINIV a significant change was obtained reaching a pH of 7.38 and a PaCO2 of 38 mm Hg with a MAP of 81.8 mm Hg and CR of 91.2 beats per minute. One hour after returning to the original settings we saw a de nuovo deterioration declining the pH to 7.34 and climbing the PaCO2 to 56.2 mm Hg. 2 patients referred regular tolerance and 3 tolerated well the procedure. After this short trial of HINIV all 5 patients were intubated and connected to invasive mechanical ventilation as required by their treating physicians..

One patient after discharge returned on a new episode of acute hypercapnic respiratory failure and was treated with the same protocol during 2 hours. We measured ABG, FEV1 and FVC on admission, at 2 hours of HINIV and at 24; 48 and 72 hours after ventilation. We observed a rapid correction of PaCO2 at 2 hours of support which was maintained at 24 hours post weaning reaching initial values at 72 hours post procedure. As PaCO2 declined we saw improvement of FEV1 up to 350 cc from baseline which was maintained for 48 hours after weaning declining progressively afterwards.

In this group of acute patients HINIV proved easy to implement was well tolerated and improved respiratory failure faster as compared to traditional NIV; no major complications were seen and in addition we can speculate that it may ameliorate respiratory function.

KEY WORDS: High Intensity Non Invasive Ventilation, Acute Respiratory Failure, Acute Implementation.

Received: Sep 21, 2016; **Accepted:** Oct 07, 2016; **Published:** Oct 17, 2016; **Paper Id.:** TJPRC:JGSACRDEC20161