

2016

- TNI during sleep of COPD patients results in a large reduction of minute ventilation and work of breathing with consecutive fall of $t\text{cCO}_2$ when compared to O_2 therapy.
(Biselli et al., 2016)
Biselli, P.J.C., Kirkness, J.P., Grote, L., Fricke, K., Schwartz, A.R., Smith, P.L., and Schneider, H. (2016). Nasal High Flow therapy reduces work of breathing compared to oxygen during sleep in COPD and smoking controls - prospective observational study. J. Appl. Physiol. jap.00279.2016.
- „TNI increases the efficiency of breathing in COPD patients and hereby eases the work of breathing and reduces $p\text{CO}_2$ in flow-dependent manner.“
(Bräunlich et al., 2016a)
Bräunlich, J., Köhler, M., and Wirtz, H. (2016a). Nasal highflow improves ventilation in patients with COPD. Int. J. Chron. Obstruct. Pulmon. Dis. 11, 1077–1085.
- „The primary effect of is washing out CO_2 out of the anatomical dead space. This results in an improved ventilation of the small airways.“
(Bräunlich and Wirtz, 2016a)
Bräunlich, J., and Wirtz, H. (2016a). Nasal Highflow (NHF) reduces PCO_2 in a sheep lung model via airway wash-out. Pneumologie 70, P10.
- „TNI regulates the oxygenation in dependency of FiO_2 .“
(Bräunlich and Wirtz, 2016b)
Bräunlich, J., and Wirtz, H. (2016b). Nasaler Highflow: Oxygenierungsverhalten unter verschiedenen Flowstufen. Pneumologie 70, P13.
- „TNI is a safe and effective method to support the ventilatory system without cardiac impact.“
(Bräunlich et al., 2016c)
Bräunlich, J., Seyfarth, H.J., and Wirtz, H. (2016c). Auswirkungen des Nasalen Highflow (NHF) auf die Hämodynamik. Pneumologie 70, P14.

2015

- „TNI reduces $p\text{CO}_2$ in COPD patients with stable hypercapnia.“
(Bräunlich et al., 2015a)
Bräunlich, J., Seyfarth, H.-J., and Wirtz, H. (2015a). Nasal High-flow versus non-invasive ventilation in stable hypercapnic COPD: a preliminary report. Multidiscip. Respir. Med. 10, 27.
- „The CO_2 wash-out increases flow-dependently.“
(Bräunlich et al., 2015b)
Bräunlich, J., Goldner, F., and Wirtz, H. (2015b). Nasaler Highflow (NHF) – Quantifizierung des CO_2 – Auswascheffektes in einem Lungenmodell. Pneumologie 69, V427.
- „The combination of nasal high flow and oxygen reduces the work of breathing and improves oxygenation in patients with lung diseases as compared to O_2 therapy alone.“
(Bräunlich et al., 2015c)
Bräunlich, J., Goldner, F., and Wirtz, H. (2015c). Nasaler Highflow (NHF) – Konkurrenz für die Sauerstofftherapie? Pneumologie 69, P432.

2014

- „TNI is able to improve symptoms of respiratory distress indicated by a decrease of breathing rates and minute volumes and a reduction of hypercapnia.“
(Bräunlich et al., 2014)
Bräunlich, J., Seyfarth, H.J., Hammerschmidt, S., and Wirtz, H. (2014). Langzeitwirkungen des nasalen high-flow bei COPD Patienten. Pneumologie 68, A5.

2013

- „TNI eases the work of breathing in patients with obstructive or restrictive lung diseases. The tidal volumes increased in COPD patients.“
(Bräunlich et al., 2013a)
Bräunlich, J., Beyer, D., Mai, D., Hammerschmidt, S., Seyfarth, H.J., and Wirtz, H. (2013a). Effects of nasal high flow on ventilation in volunteers, COPD and idiopathic pulmonary fibrosis patients. Respiration 85.
- „Minute ventilation and respiratory rate decrease during TNI whereas the tidal volume increases. The CO₂ wash-out seems to have the main impact on the pCO₂.“
(Bräunlich et al., 2013b)
Bräunlich, J., Köhler, M., and Wirtz, H. (2013b). Nasaler High-Flow: Ist es ein wash-out-Effekt? Pneumologie 67, P21.
- „TNI is a safe and efficient treatment method to improve oxygenation and to reduce hypercapnia in hypercapnic COPS patients.“
(Vogelsinger et al., 2013)
Vogelsinger, H., Halank, M., Wilkens, H., Geiser, T., Braun, S., Plattner, L., Janschek, E., Ott, S., Stucki, A., and Kaehler, C.M. (2013). Highflow-Sauerstofftherapie bei hyperkapnischen COPD-Patienten: optimiertes Sauerstoffangebot – Daten aus der STIT-2-Studie. Pneumologie 67, P40.
- „As compared to conventional O₂ therapy, TNI has no negative side effects. TNI is well tolerated by patients. A reduction of pCO₂ was observed.“
(Plattner et al., 2013)
Plattner, L., Vogelsinger, H., Janschek, E., and Kähler, C.M. (2013). Highflow-Sauerstofftherapie – Auswirkung auf die Blutgase bei schwerer COPD. Pneumologie 67, P35.
- „Compared to oxygen alone, TNI attenuated nocturnal hypoventilation in COPD patients with severe and hypercapnic respiratory failure.“
(Nilius)
Nilius, G. Nasal High Flow Oxygen Therapy Attenuates Nocturnal Hypoventilation In COPD Patients With Hypercapnic Respiratory Failure: B55. NON-INVASIVE VENTILATION.
- „TNI improves the efficiency of breathing and may be used as an adjunct to low flow oxygen for preventing hypercapnic respiratory failure in severely ill COPD patients.“
(Nilius et al., 2013)
Nilius, G., Franke, K.-J., Domanski, U., Rühle, K.-H., Kirkness, J.P., and Schneider, H. (2013). Effects of nasal insufflation on arterial gas exchange and breathing pattern in patients with chronic obstructive pulmonary disease and hypercapnic respiratory failure. Adv. Exp. Med. Biol. 755, 27–34.

2012

- „ TNI improves sleep-disordered breathing indices, and possibly sleep parameters, in stroke patients.“
(Haba-Rubio et al., 2012)
Haba-Rubio, J., Andries, D., Rey, V., Michel, P., Tafti, M., and Heinzer, R. (2012). Effect of transnasal insufflation on sleep disordered breathing in acute stroke: a preliminary study. Sleep Breath. Schlaf Atm. 16, 759–764.
- „TNI is a safe treatment method in patients with severe COPD. TNI quickly reduced pCO₂.“
(Cleven et al., 2012)
Cleven, J., Vogelsinger, H., Ott, S., Geiser, T., Halank, M., and Kähler, C.M. (2012). Effekt transnasaler “High-Flow-Sauerstoff-Insufflation” bei Patienten mit schwerer COPD. Pneumologie 66, P13.
- In patients who are preload responsive to intrathoracic pressure HFT may be a better alter-native therapy choice than CPAP.“
Tiffin and Connelly, RTSO Airwaves Fall (2012). Differences in Hemodynamic Effects between CPAP and High Flow Therapy.
- Compared to CPAP, TNI did not evoke autonomic neurophysiologic responses indicating reduced stress in probands.“
Tiffin and Connelly, RTSO Airwaves Fall (2012). Differences in Neurophysiologic Effects between CPAP and High Flow Therapy.

2011

- „In COPD patients, TNI significantly increased tidal volumes. In patients with COPD or ILD, pCO₂ dropped notably.
(Bräunlich et al., 2011)
Bräunlich, J., Beyer, D., Mai, D., Seyfarth, H., Hammerschmidt, S., and Wirtz, H. (2011). Wirkung eines nasalen high-flow Systems (HFNC) auf die Atemdruckamplitude, den Atemmitteldruck, das Tidalvolumen und den pCO₂ bei Patienten mit Lungenfibrose und COPD. Pneumologie 65.

2010

- „TNI significantly increased tidal volumes in healthy probands. As a consequence, ventilation rises.”
(Bräunlich et al., 2010)
Bräunlich, J., Beyer, D., Seyfarth, H., Hammerschmidt, S., and Wirtz, H. (2010). Einfluss der transnasalen Insufflation (TNI) auf Atemamplitude und Atemmitteldruck im Vergleich zu Spontanatmung und CPAP. Pneumologie 64.
- „ TNI is an alternative to the standard CPAP therapy in patients who predominantly have obstructive hypopnea.”
(Nilius et al., 2010)
Nilius, G., Wessendorf, T., Maurer, J., Stoohs, R., Patil, S.P., Schubert, N., and Schneider, H. (2010). Predictors for Treating Obstructive Sleep Apnea With an Open Nasal Cannula System (Transnasal Insufflation). Chest 137, 521–528.

2009

- „ TNI offers an alternative to therapy to CPAP in children with mild-to-severe sleep apnea.”
(McGinley et al., 2009)
McGinley, B., Halbower, A., Schwartz, A.R., Smith, P.L., Patil, S.P., and Schneider, H. (2009). Effect of a high-flow open nasal cannula system on obstructive sleep apnea in children. Pediatrics 124, 179–188.

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