
primary studies - published RCT

The effect of oxygen on sleep, blood gases, and ventilation in cystic fibrosis.

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Study design (if review, criteria of inclusion for studies)

Randomized cross-over trial, single center.

Participants

10 participants (CF and COPD) initially recruited, 2 participants analyzed separately due to history of snoring. 8 people with CF, mean age 22, 5 males and 3 females, all with severe lung disease. Selected for the study if in stable clinical state and SaO₂ less than 92% on random arterial blood gas.

Interventions

Patients were studied on 2 nights, 1 with oxygen and 1 with air at 2 L/min

Outcome measures

Measures of sleep quality, tcPCO₂ and SaO₂, respiratory events.

Main results

The NLFO had no effect upon sleep quality in our patients. The minimal SaO₂ occurred during REM sleep and averaged 79.4%. With NLFO, this improved to 92.7%. The average maximal rise in TcPCO₂ was 5.6 mmHg on falling asleep while breathing air; this increased a further 5.1 mmHg with NLFO. Two patients also had obstructive sleep apnea. Their SaO₂ improved dramatically with NLFO, with no deterioration of ventilation. In 4 patients, ventilation was measured quantitatively. The only consistent changes during air were an increase in abdominal contribution to tidal volume and a drop in minute ventilation from Stage 3-4 to REM sleep of 26%, almost entirely caused by a drop in breathing frequency. The same changes occurred with NLFO.

Authors' conclusions

NLFO is effective in alleviating the nocturnal hypoxemia of patients with CF with stable COPD and does not cause clinically important hypercapnia.

<http://www.mrw.interscience.wiley.com/cochrane/clcentral/articles/937/CN-00451937/frame.html>

See also

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Keywords

non pharmacological intervention - devices OR physiotherapy; Oxygen; Ventilators; Sleep Disorders;