Obstructive Sleep Apnea *and* Opioid-induced Respiratory Depression: What do we know?

Prior Work[1]

19 asleep OSA patients

randomized to

remifentanil
0.075 mg/kg-IBW per hour

vs.

saline infusion
20 ml per hour

while observing

Obstructive apnea

Sleep variables

SpO_2

Central apnea

Patients receiving remifentanil were observed to have:

- REM sleep
- Sleep efficiency
- Obstructive apnea
- SpO_2

Central apnea events increased markedly

Moderate OSA and opioid administration primarily increases risk of central apnea.

In this Issue[2]

30 awake OSA patients

vs.

20 awake control

received

10′ remifentanil
0.2 mcg/kg-IBW per min

while observing

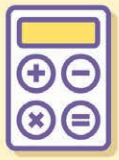
V_t

$EtCO_2$

RR

MV

Using predicted remifentanil effect site concentrations to measure OSA impact, none was seen.



OSA does not affect the relationship between opioid dose and any ventilation parameters during a brief infusion.

More research is needed to understand how we can best care for patients with OSA.

$EtCO_2$, end-tidal carbon dioxide; IBW, ideal body weight; MV, minute ventilation; OSA, obstructive sleep apnea; REM, rapid eye movement; RR, respiratory rate; SpO_2, oxygen saturation measured by pulse oximetry; V_t, tidal volume.

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1. Bernards CM, Knowlton SL, Schmidt DF, DePaso WJ, Lee MK, McDonald SB, Bains OS: Respiratory and sleep effects of remifentanil in volunteers with moderate obstructive sleep apnea. ANESTHESIOLOGY 2009; 110:41–9
2. Doufas AG, Shafer SL, Rashid NHA, Kushida CA, Capasso R: Non–steady state modeling of the ventilatory depressant effect of remifentanil in awake patients experiencing moderate-to-severe obstructive sleep apnea. ANESTHESIOLOGY 2019; 130:213–26