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Effect of Trazodone on Upper Airway Resistance in Chronic Spinal Cord Injury

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Effect of Trazodone on Upper Airway Resistance in Chronic Spinal Cord Injury

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Background:

Spinal cord injury (SCI) is a known risk factor for sleep-disordered breathing. While device-based therapies such as CPAP are beneficial in these individuals, adherence to these treatments is often low; consequently, pharmacotherapies for sleep-disordered breathing in patients with SCI are in high demand. Trazodone is an atypical antidepressant with a complex mechanism of action, including alpha adrenergic agonist activity and inhibition of serotonin reuptake. Serotonin (5-HT) is a known modulator of respiratory circuitry, which has been shown to influence the ventilatory drive. Trazodone is commonly prescribed as a sleep aid, but its impact on breathing during sleep is still unclear.

Methods:

We randomized 9 participants with chronic spinal cord injury and sleep-disordered breathing to receive either placebo or trazodone 100 mg for seven days. On day 7, participants underwent polysomnography with a supraglottic pressure catheter to determine upper airway pressure. Participants then underwent a 1-week washout period before crossing over to the other medication and repeating the same protocol. Parameters of interest included apnea-hypopnea index (AHI), obstructive apnea index (OAI), central apnea index (CAI), oxyhemoglobin desaturation index (ODI), and upper airway resistance (R_{UA}).

Results:

7 participants completed polysomnography on both medications, 5 of which had adequate data to calculate R_{UA} . Trazodone did not result in significant improvement in AHI (47.86 ± 24.27 on placebo vs 28.73 ± 28.79 on trazodone, $p=0.10$), OAI (9.29 ± 9.48 vs 2.86 ± 3.39 , $p=0.13$), CAI (1.14 ± 1.46 vs 1.71 ± 3.30 , $p=0.52$), ODI (25.00 ± 28.39 vs 19.44 ± 33.61 , $p=0.34$), or R_{UA} (2.47 ± 0.92 vs 8.98 ± 11.02 , $p=0.23$).

Conclusion:

Based on our preliminary data in a small number of subjects, trazodone is not effective in treating sleep-disordered breathing in individuals with spinal cord injury. Due to the limited sample size, our data may not accurately represent the clinical utility of trazodone, and further study in a larger number of patients is warranted.